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How Do Programs Work to Improve Child Nutrition?

Program Impact Pathways of Three Nongovernmental Organization Intervention Projects in the Peruvian Highlands

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ABSTRACT

This paper examines the program logic of three nongovernmental, community-based programs with different intervention models to reduce childhood stunting. Two programs, Child Nutrition Program (PNI) and Good Start, focused directly on education and behavior change among caregivers, or the *short routes* to achieve impact, while one program, Sustainable Networks for Food Security (REDESA), focused on upstream factors, such as improving local governance and coordination, improving water and sanitation, and increasing family incomes, or the *long routes* to achieve impact. We compared the logic of each program as it was explicitly documented to the logic as perceived by the implementers. We elucidated the program impact pathways (PIPs) of key activities by actors at different operational levels in each program to identify congruencies and gaps in the perceptions of causal mechanisms between program activities and their intended outcomes, and analyzed them with the simple program models and logical frameworks to highlight the methodology and utility of PIPs.

In a desire to move beyond static input-out models of the three programs, we designed and conducted data collection activities (document review, semi-structured interviews, and observations) with the intention of gaining insights about those aspects of the program that brought causal mechanisms of a given program into clearer focus.

We propose that different methods for eliciting PIPs may be necessary at different operational levels. The interview method elicited more complete responses among those who are familiar with programmatic concepts, whereas actors at the local operational level provided sparse and fragmentary responses, even when simple, common language was used during the interviews. Group participatory processes, using visual aids, may be more effective for mapping the perceptions of those who are not accustomed to articulating information about programs. To reduce the length and frequency of interviews with program actors, initial PIPs could also be constructed from program documents, then discussed and revised iteratively with program actors.

Although program logic models and the logical frameworks provide a succinct overview of the program (for communication, strategic planning, and management), we found that PIPs provide a better representation of the causal connections between program activities and results, particularly when both upstream and direct intervention activities were part of the same program. PIPs provide a visual tool for tracking how activities were perceived to work and make an impact, bringing into focus the different pathways of the activities and influences along the way. Beyond the logical sequence of program inputs, outputs, and outcomes, the conceptualization of impact pathways is a useful approach for understanding the causal connections required for impact and for identifying where attention and reinforcements may be required within program operation. The utility of this tool warrants its use not only during final evaluation but also during mid-program monitoring and relevant assessments.

National- and regional-level program actors had good understanding of the overarching frameworks and principles of their respective programs as well as the program components and activities. They demonstrated a strong coherence to the program documents, provided similar cohesive responses, and were able to articulate the impact pathways. However, program actors at the national level identified fewer facilitators and barriers along the impact pathways than did the local actors, revealing that the practical dimensions of the impact pathways were not as evident to planners and managers farther from the communities. Although program actors at the local level were more apt to provide practical examples of influencing factors or *incidents* that occur during implementation, they had difficulty fully articulating their perceived PIPs and provided fragmented views of how the activities linked to their outcomes. Similar patterns were found across the three programs.

This finding raises the question of desirability of a common understanding of the goals and pathways by which these outcomes are achieved or the acceptability of diversity of perspectives. It is still unclear whether program effectiveness may be improved through greater congruency in the PIPs. Future research should elucidate how congruency of PIPs among program actors across operational levels could be increased, and whether greater congruency would improve program implementation and effectiveness.

Keywords: program impact pathway, program logic model, logical framework, childhood stunting, child nutrition programs, Peru

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ABBREVIATIONS AND ACRONYMS

ADRA	Adventist Development and Relief Agency
BF	breastfeeding
CBO	community-based organization
CF	complementary feeding
CHA	community health agent
CODECO	Comité de Desarrollo Comunal (Community Development Committee)
DISA	Dirección Regional de Salud (Regional Health Department)
EBF	exclusive breastfeeding
FAO	Food and Agriculture Organization
GDP	gross domestic product
GMP	growth monitoring and promotion
JASS	Junta Administradora de Agua y Saneamiento (Water and Sanitation Administrative Board)
MIMDES	Ministerio de la Mujer y Desarrollo Social (Ministry of Women and Social Development)
MINAG	Ministerio de Agricultura (Ministry of Agriculture)
MINSA	Ministerio de Salud (Ministry of Health)
NGO	nongovernmental organization
OECD/DAC	Organization for Economic Co-operation and Development/Development Assistance Committee
PAHO	Pan American Health Organization
PIN	Programa Integral de Nutrición (Integrated Nutrition Program)
PIP	program impact pathway
PNI	Programa de Nutrición Infantil (Child Nutrition Program)
REDESA	Redes Sostenibles para la Seguridad Alimentaria (Sustainable Networks for Food Security)
SIVICO	Sistema de Vigilancia Comunal (Community Surveillance System)
SIVICOMI	Sistema de Vigilancia Comunitaria Materno Infantil (Maternal and Child Community Surveillance System)
UNFP	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WFP	World Food Program
WHO	World Health Organization

1. INTRODUCTION

Interventions to Improve Child Nutrition in Modern Peru

Many intervention strategies to combat childhood malnutrition exist. This mirrors the reality that the causes of early malnutrition are multiple and include several levels of factors, including immediate causes related to inadequate dietary intake and health and underlying causes such as food insecurity, poor maternal and childcare, and poor health services and environmental conditions (Frongillo, de Onis, and Hanson 1997). Peru presents a country case of this dual reflection. At least one in four children younger than five years of age (29.5 percent) in Peru suffers from linear growth retardation, or stunting, with rates as high as 43.2 percent in the highland regions (INEI 2007). The high prevalence of childhood stunting indicates a major problem of chronic malnutrition in the population and also represents the convergence of various social and economic factors.

In response, the Government of Peru is widely recognized for its substantial expenditure on numerous food assistance programs to vulnerable populations, with many of the programs having a longstanding history of more than two decades in operation. However, food assistance programs such as the *Vaso de Leche* (Glass of Milk) Program, *Comedores Populares* (Common Kitchens), *Programa de Alimentación Infantil* (Child Feeding Program), PACFO (food supplementation program for high-risk groups through the distribution of fortified *papillas*, or porridge), PANFAR (food and nutrition program for high-risk families), and many others have been criticized for being poorly designed (for example, having low nutritional value, poor behavior change communication, and weak monitoring and evaluation), inappropriately targeted, and not coordinated with each other or with essential complementary services (Rogers et al. 2002). In addition to the governmental programs, the Peruvian population also receives a wide range of nutrition programs operated by nongovernmental organizations (NGOs). During the 1990s and 2000s, various international, national, and regional NGOs implemented community-based health and nutrition programs throughout the country, with strategies such as nutrition education, behavior change communication, social networks, access to markets and credit, installation of water systems and sanitation facilities, and improvement of home environmental conditions.

In the mid-2000s, Peru boasted the fastest growing economy in South America, with a gross domestic product (GDP) growth rate of 8 percent in 2006 and 9 percent in 2007 (*The Economist* 2009). In 2008, President Alan Garcia even predicted that Peru would cease to be a third world nation in eight years (El Comercio 2008), despite the fact that nearly half of Peruvians still live in poverty. At the same time, international cooperation funds markedly diminished, specifically with the termination of the P.L. 480 Title II program in Peru in 2006 and decreased general assistance funding by the United States Agency for International Development (USAID) (Figure 1.1) (USAID-Peru 2008).

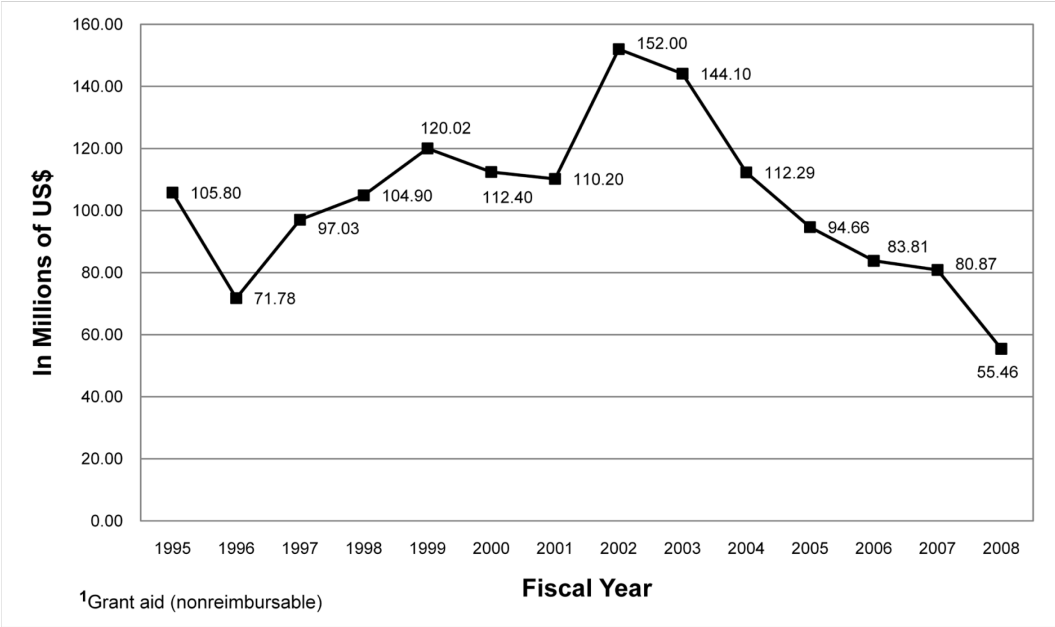
Faced with decreasing program funds and the urgency to increase attention on the continual problem of childhood chronic malnutrition in the country, the NGOs and international agencies involved in food, health, and development formed a consortium[1] prior to the 2006 presidential election, and heavily advocated for nutrition actions in political agendas. As a result, when the current administration of President Alan Garcia took office, combating chronic malnutrition was declared a national priority and was immediately included in government planning. Many of the governmental food assistance programs were consolidated. Social programs were integrated with a unified goal of reducing chronic malnutrition, particularly under the new government strategy *CRECER*,[2] which was launched in 2007. Meanwhile, the consortium of NGOs continued to coordinate, strategize, and support the government at the national and regional levels with its experience and expertise. The NGOs and international agencies looked to their

[1] The *Iniciativa contra la Desnutrición Infantil* (Initiative against Child Malnutrition) consists of *Acción contra el Hambre* (Action against Hunger), ADRA-Peru, CARE-Peru, CARITAS-Peru, UNICEF, UNFP, Future Generations, *Instituto de Investigación Nutricional* (Nutrition Research Institute), *Mesa de Concertación para la Lucha contra la Pobreza* (Consortium for the Fight against Poverty), FAO, PAHO/WHO, Plan International, PRISMA, WFP, and USAID.

[2] "CRECER," translated as "GROW" in English, is a national strategy to integrate social programs under a common goal of reducing childhood chronic malnutrition.

own successful program experiences to share lessons learned and to work with the government to make decisions about scaling up interventions.

Figure 1.1—USAID assistance to Peru[1], 1995–2008



Source: USAID-Peru (2008).

As is common practice, programmatic experiences were being considered for continuation, scale-up, or termination based on their evidence of effectiveness in achieving impact during their project period (McDonald et al. 2006). Yet, faced with so many effective interventions, the question of precisely how the programs achieve their effects and the differences among them require careful examination. Thus, understanding the program logic and impact pathways is necessary to inform decisionmaking and processes of scaling up.

Unlocking the Black Box to Understand Program Pathways

A *black box*[3] is used to refer to an untested postulate linking an exposure and an outcome in a causal sequence, where the causal mechanism is unknown (*black)*, but its existence is implied (*box*) (Skrabanek 1994). In an intervention program, the activities are the exposures that are expected to lead to a proposed health benefit. Intervention programs, particularly those with proven effectiveness, are usually expected to lead to the intended health benefit as long as the inputs are in place and the prescribed activities are executed as planned. During program design and planning, the predetermined intervention(s) is usually mapped out in conceptual or logic models or logical frameworks. In general, the logic of the program is displayed in a diagram or matrix table, under categories of program elements (inputs, activities, and results). In program monitoring and evaluation, items in these categories are transformed into process and outcome indicators and measured to verify the progression and impact of the program as planned. Although these forms of representing the program facilitate strategic planning and management and provide program overview, the mechanisms by which activities actually take place and achieve their impact are often assumed and implied without explanation.

[3] The *black bo*" has been extensively discussed and debated in the field of epidemiology in reference to unknown mechanisms between disease exposures and disease outcomes.

Even where we expect interventions to be tightly standardized and implemented, variations in implementation and impact processes across different sites and operational levels are likely. Unless the important mediating steps or connections between program activities and outcomes are clearly identified and monitored, it is difficult to know whether the intervention was delivered successfully. Thus, understanding program logic that focuses on the mechanisms and pathways may help identify whether impact was achieved despite (or perhaps because of) failure to implement the program as conceptualized and designed.

The present paper examines the explicit, or documented, and the implicit, or perceived, representations of program logic of three nongovernmental, community-based child nutrition programs with different intervention models. We present and discuss their program overviews, logical frameworks, and program impact pathways (PIPs) based on interviews with program actors. By analyzing the different representations of program logic for each program, the paper aims to elucidate different PIPs for achieving the same outcome and highlights the importance of the PIP methodology.

This paper is motivated by the insight that impact pathways of intervention programs are gravely overlooked and that variations exist in the perception of how programs work to achieve their outcomes among program actors at different operational levels. We believe that currently used program models and frameworks based on components and categories, though sufficient to monitor resources and prescribed activities, do not fully capture the impact processes of interventions. We suggest that the focus on mechanisms and pathways is important for demonstrating the causal connections between activities and outcomes in program evaluations.

This paper is organized as follows: Section 2 sets forth basic terms and concepts related to the different representations of program logic. Section 3 describes the study methods used for eliciting and mapping the logical frameworks and impact pathways. In Sections 4 to 6, we present the study results for each program. Section 7 discusses the findings across the three programs and the PIP methodology, and Section 8 concludes with reflections on the application of program impact pathways.

2. DEFINITION AND CONCEPTS

There are many models, frameworks, diagrams, and matrixes for representing what constitutes a program and its logic for achieving results. The type is selected based on the purpose and use, and sometimes even on personal preference, but often it is predetermined by a donor agency or by upper management. This section discusses several common representations of program logic.

Logic Models, Logical Frameworks, and Results Frameworks

Logic models, logical frameworks, and results frameworks are all tools for program planning and management with wide application. They have been developed and used extensively by planners and evaluators for more than 30 years. Logical frameworks, or logframes, have evolved since 1970, when the first logframe matrix was developed by USAID for improving its accountability to Congress (USAID 1996, 1998, 1999). During the 1980s and 1990s, its evolution into an integrated, comprehensive tool was largely driven by international and bilateral aid agencies for use in development planning and project management. There are many definitions,[4] philosophies, approaches, and applications of these various tools, found in literature and in practice. Terms are often used interchangeably, and there is little distinction between one diagram and another. In general, all of these tools illustrate the logical progression of a program from inputs to outputs and outcomes.

A logic model is the most general and commonly used term. It is simply a graphic or schematic representation of the logical sequence and intended relationships between inputs, activities, and results (UNICEF 2002). A logic model presents a graphic overview, highlighting the sequence between the program elements. It may present anything from a simple sequence to a highly complex relationship.

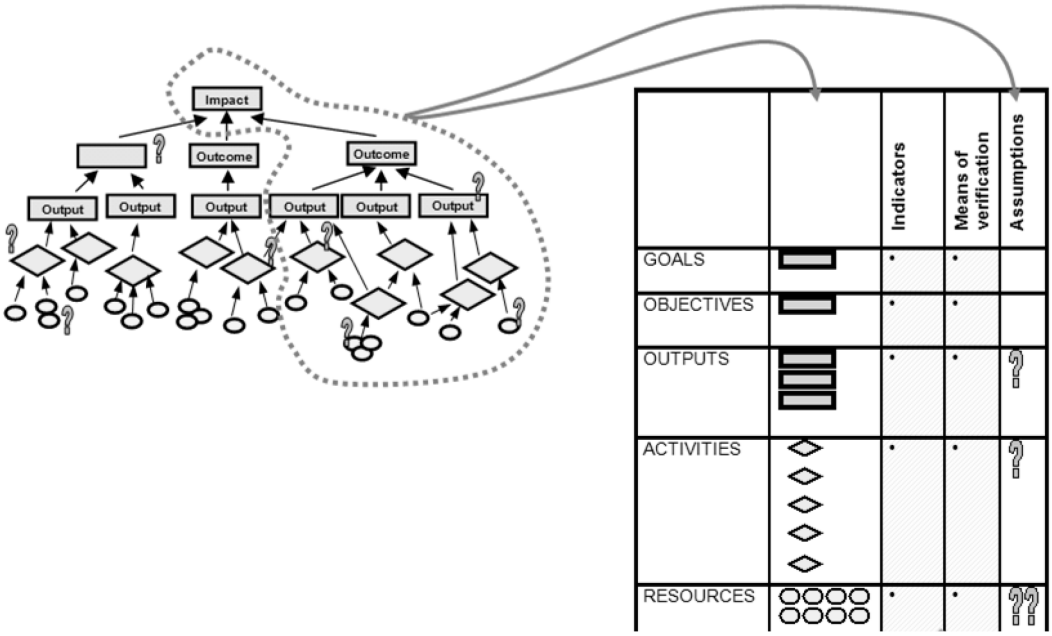
A logical framework, or logframe, includes the same information as a logic model, but it is organized in a matrix table (Figure 2.1). Logical frameworks are defined by the Organization for Economic Co-operation and Development/Development Assistance Committee (OECD/DAC) (2002) as a "management tool used to improve the design of interventions . . . [and] involves identifying strategic elements (inputs, outputs, outcomes, and impact) and their causal relationships, indicators, and the assumptions and risks that may influence success and failure." Thus, logical frameworks tend to be more specific than program logic models. Logical frameworks follow the same reasoning as logic models, but they extend further to the identification of indicators for each component, their means of verification (or sources of data), and their assumptions (UNICEF 2002).

A specific variation of the logical framework is the results framework, which focuses on outcomes, objectives, and impact/goals. The results framework starts with the program's ultimate goals and a hierarchical outline of results to achieve that goal. Program strategies and activities that are expected to lead to the intermediate results are subsequently identified. The results framework was adopted and widely promoted by USAID to strengthen the planning and evaluation of its projects (USAID 1996, 1998, 1999). Marsh and colleagues (2008) outlined the *6-box* version commonly used by health programmers (Figure 2.2), where "each box reflects a specific category of programmatic result, all of which contribute to the overall goal of improved health status" (Marsh, Alegre, and Waltenspe 2008, 630). This framework indicates stepwise results to achieve the goal and prompts the specification of indicators to track progress toward achieving these results.

These various diagrams and matrixes present a logical sequence of programmatic elements, an overall programmatic direction, and even a focus on results. Although all serve as important strategic and management tools, there is often a general lack of focus on mechanisms and pathways.

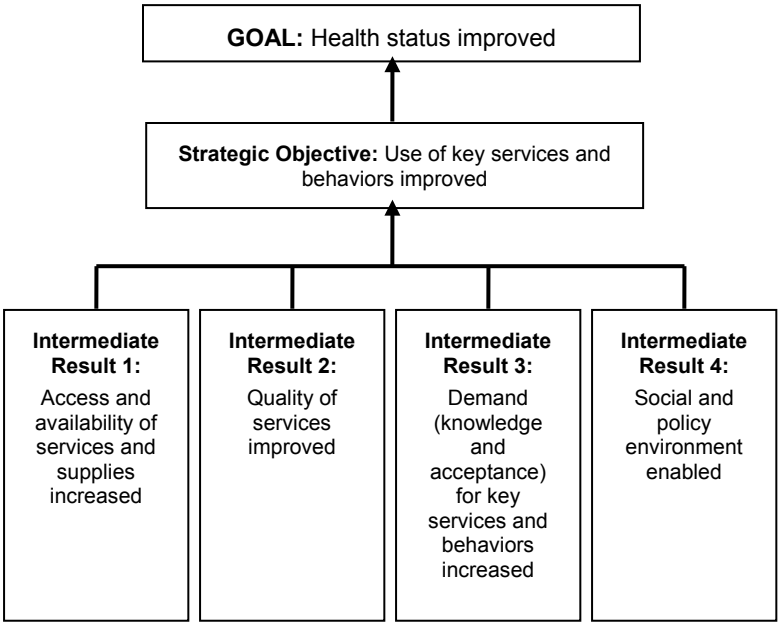
[4] Program logic models have been called by different terminology: "Chains Reasoning" (Torvatn 1998), "Theory of Action" (Patton 1997), "Performance Framework" (Montague 1997), and "Program Logic Models" (Framst 1995; Rush and Ogborne 1991).

Figure 2.1—Relationship between logic models (left) and logical frameworks (right)



Source: UNICEF (2002).

Figure 2.2—Results framework



Source: Marsh, Alegre, and Waltensperger (2008).

Program Theory and Program Impact Pathways (PIPs)

Program theory is an explicit representation of the "mechanisms by which program activities are understood to contribute to the intended outcomes" (Rogers 2000, 209). In program theory, the processes that link program activities with immediate outcomes (related to learning), intermediate outcomes (related to actions), and final outcomes (related to conditions) are explicitly defined. Theory is employed at two levels: (1) the conceptualization of mediating processes that link program components to immediate outcomes and (2) the psychosocial theory that explains intermediate outcomes that mediate the final outcomes (West and Aiken 1997). This has been described simply as being interested not in the boxes in a causal diagram but in the arrows (Yin 1997, 75). Program theories may be simple or complex, linear or cyclical. They may be used for at least three purposes: (1) summative or impact evaluation that focuses on answering the question, "Does the program cause the intended outcome?" (Bickman 1996); (2) formative or process evaluations that are intended to suggest how the program can be improved; and (3) ongoing program monitoring that provides continuous indicators of program performance (Baldwin 2004). During evaluations, program theories could serve to identify essential causal pathways and then to analyze whether these pathways connected to specific program elements are plausibly and empirically associated with their success. Even after the final evaluations, program theories could be used to understand how the programs worked or continue to work to achieve their intended outcomes and to identify important program elements that are essential for widespread replication.

In general, there is little documentation and use of program theories in nutrition intervention programs. However, there is growing interest and greater awareness of the need to understand causal mechanisms and pathways of intervention programs. There is recent evidence building on the use of impact pathways analysis for strategic planning and monitoring (Douthwaite et al. 2007; CGIAR 2010), and the use of intervention-causation pathways, program causal pathways, and program impact models for program evaluation (Kadiyala et al. 2009; Kumar, Kumar, and Darmstadt 2010; Leroy, Ruel, and Verhofstadt 2009).

In a 2008 WHO/UNICEF meeting on improving feeding of infants and young children 6 - 23 months of age in nutrition and child health programs, the term *program impact pathway* was defined as "the pathway from an intervention input through programmatic delivery, household and individual utilization to its desired impact" (WHO 2009). With the focus on the causal mechanisms of programs and the intention to move beyond static input-out program models, we use the term program impact pathways in this paper in reference to the methodology and explicit representation of the pathways by which the program (activities) achieves its intended outcomes.

3. STUDY METHODS

This section describes the methods used in the empirical study to construct and analyze the different representations of program logic and impact pathways of child nutrition programs.

Program Selection

The programs in this study were first identified in 2006 during meetings[5] and discussions with actors from the Peruvian national government, international aid agencies, and national institutions involved in health and nutrition. Various actors recognized three programs as being exemplary in effectiveness and recommended them for further study. Although they used different approaches and strategies, the three nongovernmental community-based intervention programs had the same final outcome, that is, reduced prevalence of chronic malnutrition among children younger than three years of age. They also focused primarily on behavior change without the distribution of food supplements. The three selected programs were ADRA-Peru's Child Nutrition Program (*Programa de Nutrición Infantil* [PNI]), CARE-Peru's Sustainable Networks for Food Security (*Redes Sostenibles para la Seguridad Alimentaria* [REDESA]), and UNICEF's Good Start (*Buen Inicio*). ADRA-Peru's PNI and UNICEF's Good Start focused directly on education and behavior change among caregivers, or the short routes to achieve impact, whereas CARE-Peru's REDESA focused more intensively on upstream factors, such as improving local governance and coordination, improving water and sanitation, and increasing family income, or the long routes to achieve impact. Details about the intervention activities are discussed in the results sections.

All three programs similarly focused on intervening at the community level among rural poor populations in the highlands, where stunting prevalence is the highest in the country. They were funded through five-year project grants from USAID. Two of the programs (ADRA-Peru's PNI and CARE-Peru's REDESA) were among the four NGOs that received USAID P.L. 480 Title II program funds. UNICEF, CARE-Peru, and ADRA-Peru terminated their funded project cycles in 2004, 2006, and 2007, respectively.

At the end of their project cycles, the programs conducted final evaluations, which showed significant reductions in stunting prevalence in the program areas. A summary overview of the three programs and their final evaluation results are presented in Table 3.1 (ADRA-Peru 2007; CARE-Peru 2007; Lechtig 2007).

Although the program impact evaluations are not a focus of this study, their results are discussed here briefly as evidence of effectiveness in achieving their common end point. Fieldwork for the final program evaluation of ADRA-Peru's PNI was conducted from August 19 to September 21, 2007. A probabilistic stratified sample of intervention households was selected by geographic regions of the intervention. There was no nonintervention comparison group of households that did not participate in the program. The evaluation methods included household surveys, anthropometric measurements, in-depth interviews, and document review. The final evaluation reported the total percentage of children younger than 36 months of age with chronic malnutrition as 26.2 percent (ADRA-Peru 2007).

Although the program evaluation was originally intended to have a pre- and post-evaluation design, there were problems with the sampling and interpretation of results. The baseline (or pre-intervention) evaluation was conducted in 2002 by ADRA-Peru. However, ADRA-Peru terminated food distribution in 2004 and focused on the behavior change strategies of its program, and they also began working in different households in different geographical areas (mainly due to communities refusing to continue participation without food distribution). Thus, the intervention areas for the final evaluation were not entirely the same as those of the baseline evaluation. Although the percentage point difference in the reduction of chronic malnutrition between the baseline and the final evaluations was reported as 5.6

[5] Selected programs were identified during two specific meetings in Peru: a national-level meeting of government officials and major NGOs to discuss a prospective World Bank project called Nutrition Results (December 2006), and a technical meeting on CRECER with governmental and NGO national and regional actors working in nutrition and education (June 2007).

percent (ADRA-Peru 2007), this figure might be biased. However, the decreasing trend in the prevalence of chronic malnutrition in the intervention areas, particularly during the period without food distribution, was supported by annual program monitoring data. The year-end prevalence rates of chronic malnutrition among children younger than three years from 2002 to 2007 were 29.3 percent, 29.7 percent, 29.7 percent, 27.5 percent, 25.9 percent, and 21.0 percent, respectively (ADRA-Peru 2007). A reduction was noted between the years of the program without food distribution (2005 to 2007), with a percentage point difference of 6.5 percent (ADRA-Peru 2007).

Table 3.1—Summary of the three community-based child nutrition programs

	ADRA-Peru's PNI	CARE-Peru's REDESA	UNICEF's Good Start
Program period	Oct. 2004–Sep. 2007 (3 years) 2002–2004 (2 initial years with food distribution)	Oct. 2001–Sep. 2006 (5 years)	Oct. 1999–Sep. 2004 (5 years) 2005–2008 (*expansion phase* to disseminate the methodology without direct intervention support)
Regions	Ayacucho, Cajamarca, Huancavelica, Huanuco, La Libertad, Ucayali (n = 6)	Ancash, Apurimac, Ayacucho, Cajamarca, Huancavelica, La Libertad, Puno (n = 7)	Apurimac, Cajamarca, Cusco, Loreto (n = 4)
No. of program participants	22,128 children < 3 years, 21,667 pregnant and lactating mothers	64,434 children < 3 years, 58,570 families	75,000 children < 3 years, 35,000 pregnant and lactating mothers
Total 5-year budget, funding from USAID	US$13,369,721	US$21,340,000 (US$33.50 per year per child intervened, for each percentage point reduction in stunting)	Not available (US$36.40 per year per child intervened, for each percentage point reduction in stunting)
Final evaluation date	September 2007	September 2006	September 2004
Sample size in evaluation	960 households	1,597 households	876 children in 19 communities (for anthropometric data)
% stunting (pre)	31.8 (2002) (Based on monitoring data: 29.3% in 2002 and 27.5% in 2005)	34.2 (2002)	54.1 (2000)
% stunting (post)	26.2 (2007) (Based on monitoring data: 21.0% in 2007)	24.3 (2006)	36.9 (2004)
Percentage point difference (reduction)	5.6 (Based on monitoring data: 6.5 percentage point difference between 2005 and 2007)	9.9	17.2

Source: ADRA-Peru (2007), CARE-Peru (2007), Lechtig (2007).

Fieldwork for the final evaluation of CARE-Peru's REDESA was conducted from August 11 to September 3, 2006. A random representative sample of households in the intervention areas was selected, as well as control households that did not participate in the program. Data collection methods included household surveys (a socioeconomic questionnaire and a health-nutrition questionnaire with anthropometric measurements), interviews, and focus groups. The baseline evaluation in 2002 reported the prevalence of chronic malnutrition in children younger than three years of age as 34.2 percent ($p < 0.0001$) (CARE-Peru 2007). In the final evaluation, the prevalence of chronic malnutrition in the

same age group was 24.3 percent ($p < 0.0001$) (CARE-Peru 2007). The percentage point difference between the baseline and the final evaluations was 9.9 percent (CARE-Peru 2007).

The final evaluation of UNICEF's Good Start program was conducted in 2004 in all of its four intervention regions. A random cluster sample was selected in two stages in the four regions. However, given that the initial intervention areas included in the 2002 baseline survey were much smaller than those participating in the program in 2004 and only anthropometric and biochemical data were collected initially, anthropometry and hemoglobin and serum retinol levels were measured in 19 communities that were included in both surveys. A comprehensive household survey was applied for the broader sample in the final evaluation only. The prevalence of chronic malnutrition in children younger than three years of age at baseline was 54.1 percent and 36.9 percent ($p < 0.01$) at final evaluation, for a 17.2 percentage point reduction (Lechtig 2007).

Although ADRA-Peru, CARE-Peru, and UNICEF reported their programmatic experiences in their respective program documents and gray literature, there is no formal documentation of their program impact pathways (PIPs) and no comparative analysis across the various programs prior to this paper.

Selection of Key Program Actors

Key informants involved with the three programs at the national, regional, and local levels were selected to participate in interviews to elicit their perceived program impact pathways. For each program, project staff from ADRA-Peru, CARE-Peru, and UNICEF at the national and regional levels was identified. All project staff was considered to belong to the national and regional levels, even those who worked directly at the local levels, because they were employed by the higher levels. In the case of Good Start, UNICEF's support to communities was provided through an intermediary, either regional NGOs working in the program area or the health network (that is, different levels of health establishments) of the Ministry of Health. Thus, key informants for Good Start at the regional and local levels also included project staff of the regional NGOs and health personnel in the government health network. For this study, regional actors for the three programs were limited to those in two neighboring highland regions, Apurimac and Ayacucho. At the local level, the organizational schema of key actors involved in program delivery was developed for each program, based on program documents and discussions with the national program coordinators. The organizational schema for each program is discussed in the Results sections.

A purposeful sample of participants was selected for the semi-structured interviews at the national, regional, and local (district or community) levels. Types of interview participants included national program coordinators, regional program coordinators, regional and local health staff, district municipality managers, community authorities, and community health agents. Although a few interviews with program beneficiaries (that is, mothers) about their participation and experience were conducted during the site visits, insufficient data were collected. Thus, their results are not included in this paper.

Data Collection Methods

This study was conducted in Lima, Peru, at the national offices of ADRA-Peru, CARE-Peru, and UNICEF, and at seven program communities in the highland regions of Ayacucho and Apurimac. The communities for site visits were selected by the national program coordinators. They selected communities considered *model communities*, where program activities were in operation. In Ayacucho, two PNI communities were visited in the district of Jesus Nazareno. In Apurimac, site visits were conducted in two REDESA communities in the district of Huaccana, province of Chincheros, and three Good Start communities, two in the districts of Santa Maria de Chicmo and Kaquiabamba, province of Andahuaylas, and one in the district of Huaccana, province of Chincheros. Data collection was conducted in July and August 2007. Ethical approval for the study was obtained from the Cornell University Commission on Human Subjects and the Nutrition Research Institute (Instituto de Investigación Nutricional) Ethics Committee in Lima. Verbal consent was obtained from all participants prior to the interviews. Three methodological approaches were used: document reviews, semi-structured interviews,

and observations during site visits to program communities. Across all data collection methods, the intention was to gain insights about aspects of the program that brought causal mechanisms of a given program into clearer focus. In a desire to move beyond static input-out models of the three programs, data collection activities were designed to provide insights about how components of a particular program enabled the program to achieve its goals.

Document Review

Program documents such as progress and final evaluation reports, informational pamphlets or booklets, and instructional or educational materials were obtained from the national and regional offices and collected during site visits. The list of program documents reviewed is presented in Appendix Table A.1. The program documents were secondary data sources used to obtain program overview and understanding of the intervention activities. The official espoused program models were extracted from the program documents and used for comparison with the logical frameworks and program impact pathways constructed from the interviews and observations. Information from program documents also helped explain and clarify the data collected during the interviews and observations.

Semi-structured Interviews

A total of 20 semi-structured interviews (5 PNI, 6 REDESA, and 9 Good Start) were conducted with actors involved in program delivery at the national, regional, and local levels. The list of interview participants is shown in Table 3.2. Most of the national and regional program actors interviewed were ADRA-Peru, CARE-Peru, and UNICEF program staff. In the case of Good Start, the regional actors also included program staff of the regional NGOs (Kusi Warma and Solaris) and Ministry of Health officials at the Regional Health Department (DISA).

Table 3.2—List of interview participants

Program	Level (No. of interviews)	Position/Title
PNI	National (n = 1)	Program administrator (ADRA-Peru)
	Regional (n = 1)	Regional program adviser (ADRA-Peru)
	Local (n = 3)	District municipality manager
		Vaso de Leche Program coordinator
		Community health agent
REDESA	National (n = 1)	Program coordinator (CARE-Peru)
	Regional (n = 3)	Program coordinator (CARE-Peru)
		Nutrition consultant (CARE-Peru)
		Subregional program coordinator (CARE-Peru)
	Local (n = 2)	CODECO community authorities
		Community health agent
Good Start	National (n = 1)	Program coordinator (UNICEF)
	Regional (n = 6)	Nutrition consultant (UNICEF)
		Program coordinator (Kusi Warma)
		Program adviser (Solaris)
		DISA health promotion official
		DISA integrated care official
		DISA integrated child health coordinator
	Local (n = 2)	Community health agent
		Health post nurse

Source: Authors.

Semi-structured interviews were conducted using a pretested interview guide (Appendix Table A.2) and general probing questions to explore specific issues. All participants were questioned about the purpose of the program; how the program (activities) works to achieve immediate results related to learning and knowledge, intermediate results related to behavior change, and the final health outcomes; facilitators and barriers to outcomes; and factors that influenced program implementation. Given that local actors included rural community members who predominantly spoke Quechua (native language) and/or did not understand technical or programmatic terminology, another version of the interview guide for local actors was developed, using simple, common words for questions related to program elements. All interviews were conducted in Spanish, digitally recorded, and transcribed.

Observations during Site Visits

Observations of key program activities were conducted during each site visit (2 PNI, 2 REDESA, and 3 Good Start communities). Key program activities were those identified in program documents and during interviews as the core activities implemented across all intervention communities. The site visits were coordinated so that preplanned program events, such as educational sessions for beneficiaries, workshops for local health personnel and community health agents, and local council or committee meetings, were observed. The main purpose of the observations was to obtain a practical understanding of the implementation process of a key activity for each program. Observations were recorded through the use of field notes during the activity, and expanded notes were written immediately following each observation to describe the context and steps of the event, beneficiaries' responses, and the overall experience. Observation field notes were used to supplement the data collected through the interviews.

Data Analysis

First, the general program models and results frameworks were reproduced based on program documents to provide an overview of the programs. Organizational schemas of program actors were developed using program documents and interview data. Then the logical frameworks and impact pathways of the programs were elaborated, using interview responses supplemented with program documents and observation field notes. Interview transcripts were coded with Atlas.ti 5.2 (qualitative data software) and by hand notation, according to predefined codes of program elements (that is, rationale, assumptions, inputs, activity process, outputs, impact process, outcomes, facilitator, barrier, and adaptation) and emergent themes. For each program activity, quotations by codes were diagrammed to connect the sequences between program elements.

Given that each program was made up of many intervention strategies and activities, a single logical framework for each program was constructed to capture the scope and logic of the activities implemented. The logical frameworks were elaborated from the aggregated interview data across all operational levels, national to local. Only the program activities identified in the interviews were included, rather than encompassing all possible range of activities from the program documents. Then the logical framework of one key activity from each program was extracted for discussion in this paper. As previously mentioned, key program activities were those identified in program documents and during the interviews as the core activities implemented in all intervention communities.

The impact pathways of program activities were also elaborated based on the interview data, with observation data used to facilitate understanding of the activity sequence to immediate outcomes. Although impact pathways may flow in various directions, data from our study permitted mapping of only unidirectional pathways. The impact pathway of one key activity for each program is presented and discussed in this paper. In order to examine a common activity across the three programs, the impact pathways of growth monitoring and promotion (GMP) are also discussed in this paper.

The types of models and frameworks in this paper and their primary data sources are as presented in Table 3.3.

Table 3.3—Types of program models and frameworks and primary data sources

Models and frameworks	Primary data source
• General program model and results framework • Organizational schema	Program documents
• Logical framework	Interviews Program documents
• Program impact pathways	Interviews Observations

Source: Authors.

Special Consideration of Growth Monitoring and Promotion

Growth is widely accepted as a measure of nutritional status and well-being. The measurement of growth has also been widely used for a variety of purposes at the individual and population levels (WHO 1995; Roberfroid, Pelto, and Kolsteren 2007). Infant and child growth monitoring, or "the regular measurement, recording, and interpretation of a child's growth in order to counsel, act, and follow up results" (Yee and Zerfas 1986), is a central feature of many child health and nutrition programs. However, measurement and charting alone are insufficient for improving nutritional outcomes (Gerein and Ross 1991; Chopra and Sanders 1997), and promotion is added to emphasize the essential counseling and motivation of mothers following the task of monitoring (Latham 1997). Thus, the combination of growth monitoring and promotion (GMP) allows for the early identification of child malnutrition and an opportunity for regular counseling on infant and young child feeding and care practices.

There are different views about the role of GMP in programs to improve child growth, with some groups basing an entire infant and young child feeding strategy around GMP (for example, Bangladesh Integrated Nutrition Programme, or BINP, Integrated Community Child Health Program, or AIN-C, in Honduras, and so on), and others using GMP as a narrower activity in a larger child nutrition strategy (for example, World Vision in Haiti). Successes with GMP have been mixed, but it continues to be discussed globally as a potential keystone strategy for improving child nutrition (Roberfroid, Pelto, and Kolsteren 2007). In all three programs of our study, GMP was identified as an important activity for improving child growth and nutrition. Thus, we selected this common activity as another example for a closer look at impact pathways, particularly in showing the different uses and pathways of the same activity.

Assumptions and Limitations

This study was conducted during the final project phase or shortly following the termination of external funding support of the three programs. We used the information and persons available at the time of the study. Other program documents were produced after the data collection period, but only the selections available and relevant were gathered and reviewed. To ensure the observations of key program activities, the national program coordinators coordinated with local counterparts to identify exemplary communities with ongoing activities for site visits. Given that hundreds of communities participated in the programs, a wide range of activities and extent of implementation existed. Also, some communities had already stopped their activities, because external support was no longer available. We tried to observe ongoing key activities in a few selected communities with ideal program conditions.

All three programs focused on activities implemented in and by the communities rather than interventions primarily through the health services, as is common in most public health and nutrition programs. (In the case of Good Start, the government health network was used as the primary implementer to deliver program activities in some communities, but we focused only on its community-

based strategy for this study.) This community focus created the need for a broader consideration and understanding of program actors, beyond health personnel.

The three programs consisted of many more elements and results (both positive and negative) than those included in this study. For the purpose of this paper, the programs are described in general terms and only specific aspects are highlighted for discussion. The results are mostly illustrative to discuss main findings and methodologies, and the findings from this study do not call into question the impact or effectiveness of the programs.

4. ADRA–PERU'S CHILD NUTRITION PROGRAM (PNI)

Program Overview

What Is the Program?

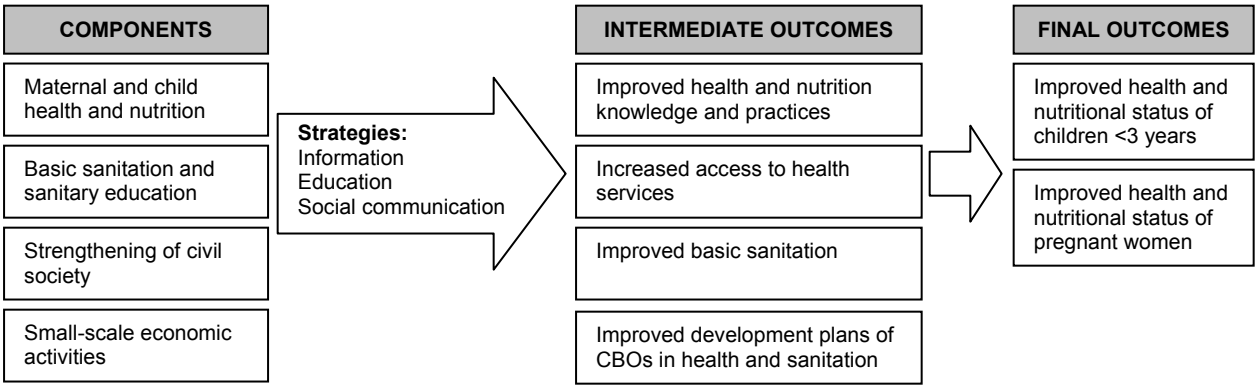
The Child Nutrition Program (PNI) was a five-year project (2002–2007) implemented in two cycles. In its first two project years, food baskets were distributed as part of the support through USAID P.L. 480 Title II program funds. The food baskets were intended to be a strategy to improve household food availability, but they also served as an incentive for program participation. In its third project year, ADRA-Peru stopped food distribution. This study focused on PNI strategies during this second cycle.

PNI was the culmination of ADRA-Peru's programmatic experience in improving child nutrition for more than a decade in Peru. Program activities included weekly or biweekly mothers' workshops on health and nutrition topics, follow-up home visits, monthly growth monitoring and promotion by community health agents (CHAs), and small economic activities among mothers as an incentive to ensure their participation. PNI focused on health and nutrition education of mothers and nutritional surveillance under the direct leadership and responsibility of CHAs. Its explicit strategies were information, education, and social communication. Although the installation of water and sanitation systems (that is, latrines) and the formation of community organizations for health and development planning (that is, local health committees) were originally included among their activities, these activities stopped being implemented during the second cycle due to budget shortfalls and lack of uptake or retention of the activity in the communities. However, hygiene and sanitation remained as core topics in the mothers' workshops and were addressed during annual public cleanup and biannual hand-washing campaigns. Also, maternal and child health and nutrition activities continued to be advocated during community development planning.

The only model or framework explicitly presented in the program documents is the general program model shown in Figure 4.1. This explicit program model summarized the program in terms of its components, strategies, and expected results. PNI consisted of four components: (1) maternal and child health and nutrition, (2) basic sanitation and sanitary education, (3) strengthening of civil society, and (4) small-scale economic activities among beneficiary mothers. Each component was made up of activities that correspond to the strategies of information, education, and social communication. The activities were expected to result in four main intermediate outcomes: (1) improved health and nutrition knowledge and practices, (2) increased access to health services, (3) improved basic sanitation, and (4) improved development plans of community-based organizations (CBOs) in relation to health and sanitation. These four intermediate outcomes then led to the final outcomes of improved health and nutritional status of children younger than three years of age and pregnant women.

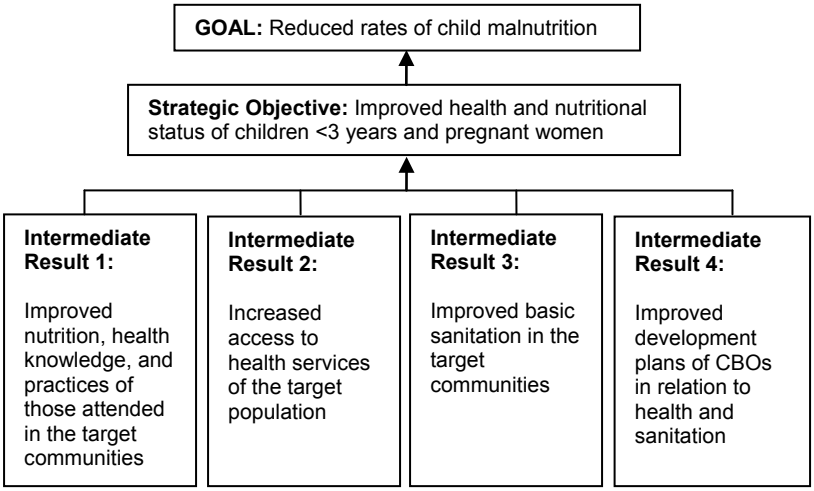
Given their similar layouts, the general program model was easily converted into the 6-box version of the USAID results framework (Marsh, Alegre, and Waltenspe 2008), shown in Figure 4.2.

Figure 4.1—PNI program model



Source: ADRA–Peru (2007).

Figure 4.2—PNI results framework



Source: Compiled from ADRA–Peru (2007) by authors.

As observed in Figures 4.1 and 4.2, both the explicit program model and the basic results framework from the program documents are very general, describe few program elements, and make many assumptions about how program components are expected to achieve the results. Although details on how to implement the activities within the program components are provided in the educational and instructional materials, there is still an unspecified assumption that activities implemented as prescribed will result in the expected outcomes. Furthermore, this same general program model was continually replicated across various program documents produced over time. It appeared that this program model was not revised or updated, despite discussions of operational experiences and lessons learned in the program documents that may have permitted refinement of the model.

Who Is Involved?

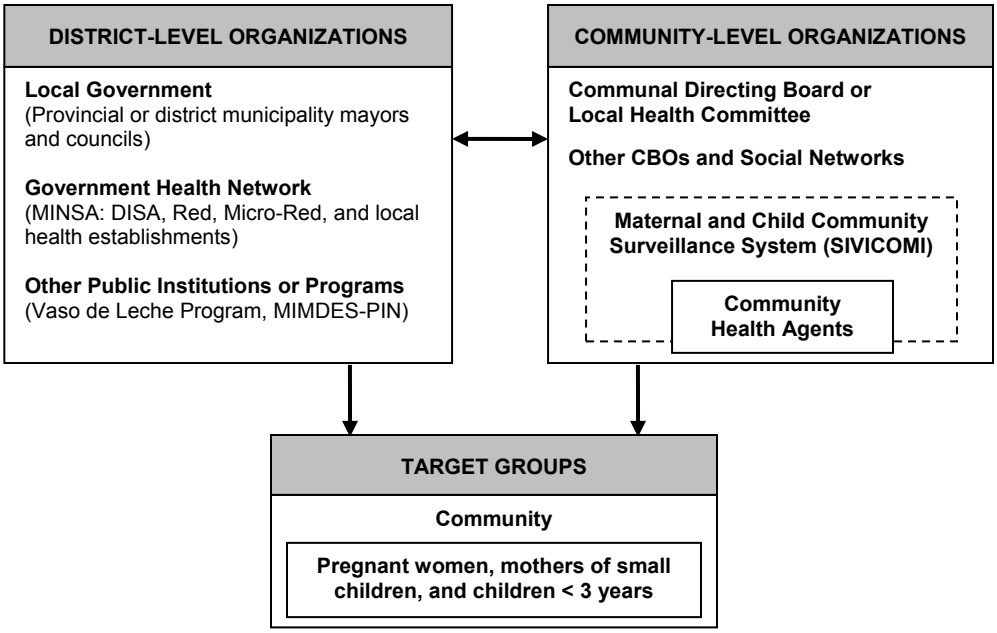
An organizational schema of program actors is an essential part of understanding how the program works. As a community-based intervention program, PNI involved CBOs and other local actors to achieve its impact in the community, particularly among its main target groups of pregnant women and mothers of children younger than three years of age. Although the focus was on the community, PNI also involved formal organizations[6] at the district or multi-community level, because the community is directly influenced by the actions of the social and political structures at this level. The organizational schema of local actors involved in PNI is shown in Figure 4.3.

At the community level, PNI coordinated with the communal directing board (or local health committee, where one exists), which consists of community authorities that manage all matters pertaining to the general well-being and development of the community. Other CBOs and social networks, such as mothers' clubs and agricultural associations or committees, were convened to participate in certain communitywide activities (for example, campaigns on hand-washing and cleaning communal spaces) and were sensitized to discuss maternal and child health and nutrition issues in their organizational meetings and during community development planning. The community was also informed of the health and growth status and progress of pregnant women and small children through the Maternal and Child Community Surveillance System (SIVICOMI), directly managed by the CHAs. The SIVICOMI referred

[6] Formal organizations are commonly denominated as structures with a fixed set of rules of intra-organizational procedures and systems of coordinated and controlled activities executed through formal positions, and embedded in boundary-spanning exchanges. For the purpose of this study, formal organizations are institutional structures and characterized as being top-down, hierarchical, and bound by codified rules and order.

to the group(s) of 10 to 20 beneficiary mothers or caretakers in the community, whose children's health and growth status were monitored regularly by the CHAs. Those belonging to the SIVICOMI participated in the weekly or biweekly workshops and other activities led by the CHAs.

Figure 4.3—PNI organizational schema at the local level



Source: Compiled from the list of documents in Appendix Table A.1 by authors.

The district level is the final geopolitical level for governmental resources, official census, and formal organizations. The three main groups of formal organizations involved with PNI included the local government, the government health network, and other public institutions and programs related to food and nutrition. The local government refers to the provincial or district municipality, and PNI coordinated with the local government in specific activities and advocated the inclusion of activities to improve child nutrition in local development plans. The health network refers to the different levels (national, regional, and local) of the Ministry of Health (MINSA): the regional health department (DISA), the regional network (Red) responsible for the micro-networks, the micro-network (Micro-Red) of a cluster of local health establishments, and the local health establishments (for example, health centers and health posts). PNI coordinated with MINSA at every level to inform them of its activities and to transfer resources. However, PNI coordinated more closely with local health establishments, particularly involving health personnel to participate in activities related to health and nutrition education for the community. PNI also worked with other public institutions and programs involved in food and nutrition, such as the *Vaso de Leche* (Glass of Milk) Program and the Integrated Nutrition Program (PIN) of the Ministry of Women and Social Development (MIMDES), to coordinate educational and social communication activities.

Logical Framework of Mothers' Workshops

Similar to other logic models, a logical framework serves to communicate what a program invests, intends to do, and hopes to achieve, but it is organized in a matrix table and displays more specific details of program elements. The logical framework of PNI's key activity, that is, mothers' workshops, was constructed with the program elements: rationale and assumptions, inputs, target population, outputs, and outcomes (Table 4.1). Although logical frameworks usually include indicators or the means of verification (data source) of the program elements, we excluded them from our logical framework because few were identified.

Table 4.1—Logical framework for mothers' workshops

Rationale and Assumptions	Resources/Inputs	Activities	Target Population	Outputs	Proximal or Immediate Outcomes	Intermediate Outcomes	Final Outcomes
COMPONENT 1. Maternal and child health and nutrition							
Poor child health and nutrition are a problem in the community Mothers require knowledge and understanding of health and nutrition issues and how to address them Common shared knowledge provides appropriate and feasible solutions Access and availability of foods and other resources to implement practices at the household level exist (for example, through social programs)	Trained community health agents (CHA) Materials and supplies (for example, theme schedule, flip charts, markers, poster papers, food for demonstrations, cooking utensils) Space or facility Time Monitoring and supervision	Workshops (weekly or biweekly)	Pregnant women, mothers of small children, and children < 3 years	CHAs identify health and nutrition concerns among mothers and growth progress of their children CHAs facilitate adequate and appropriate discussion and demonstrations and provide relevant information on health and nutrition issues Mothers receive adequate and appropriate health and nutrition information Mothers understand the health and nutrition issues and information	CHAs adapt discussions and demonstrations according to relevant concerns and needs Mothers recall information Mothers implement actions to prevent health and nutrition problems and promote growth and development (that is, improved feeding, health, and care practices) Mothers recognize signs of health or nutrition problems Mothers seek out health services in a timely manner	Children EBF for 6 months, then consume adequate and appropriate complementary foods with BF Children receive timely and adequate health attention Children receive appropriate care Children are exposed to clean and safe home environments Pregnant women consume sufficient and appropriate foods Pregnant women receive timely and adequate health services	Child growth and nutrition improved Nutritional status of pregnant women improved

Source: Compiled from list of documents in Appendix Table A.1 by authors.
Notes: EBF = exclusive breastfeeding; BF = breastfeeding.

The mothers' workshops were an important activity pertaining to the first program component (maternal and child health and nutrition) of the PNI program model (Figure 4.1). An important rationale for the workshops was that common and shared knowledge among mothers would lead to appropriate and feasible solutions. Thus, in the workshops, mothers were expected to share their common knowledge to reach solutions to their health and nutrition problems. Some assumptions identified were the lack of knowledge among mothers, and the access and availability of foods in the household, especially those obtained through the support of government social programs. Given these assumptions, the workshops focused on education and information exchanged among the mothers and with the CHAs. Then under each categorical heading within the matrix, a series of expected outputs and outcomes were listed. However, given the matrix layout with categories of program elements, it is difficult to capture how the activity actually takes place and how all or part of the listed outputs proceed to connect with the subsequent outcomes. Although the logical framework provides an understanding of why this activity is implemented and what this activity is expected to accomplish, the causal relationships are not clearly presented in this matrix.

Impact Pathway of Mothers' Workshops

As explained in Section 1, program impact pathways (PIPs) involve conceptualization of the mediating processes linking program activities to immediate outcomes, and the intermediate outcomes to final outcomes of the program. The pathways represents the causal connections of how a program activity works, while the identification of facilitators and barriers based on practice and experience provide the practical dimension to support a full representation of how the program works to achieve its impact.

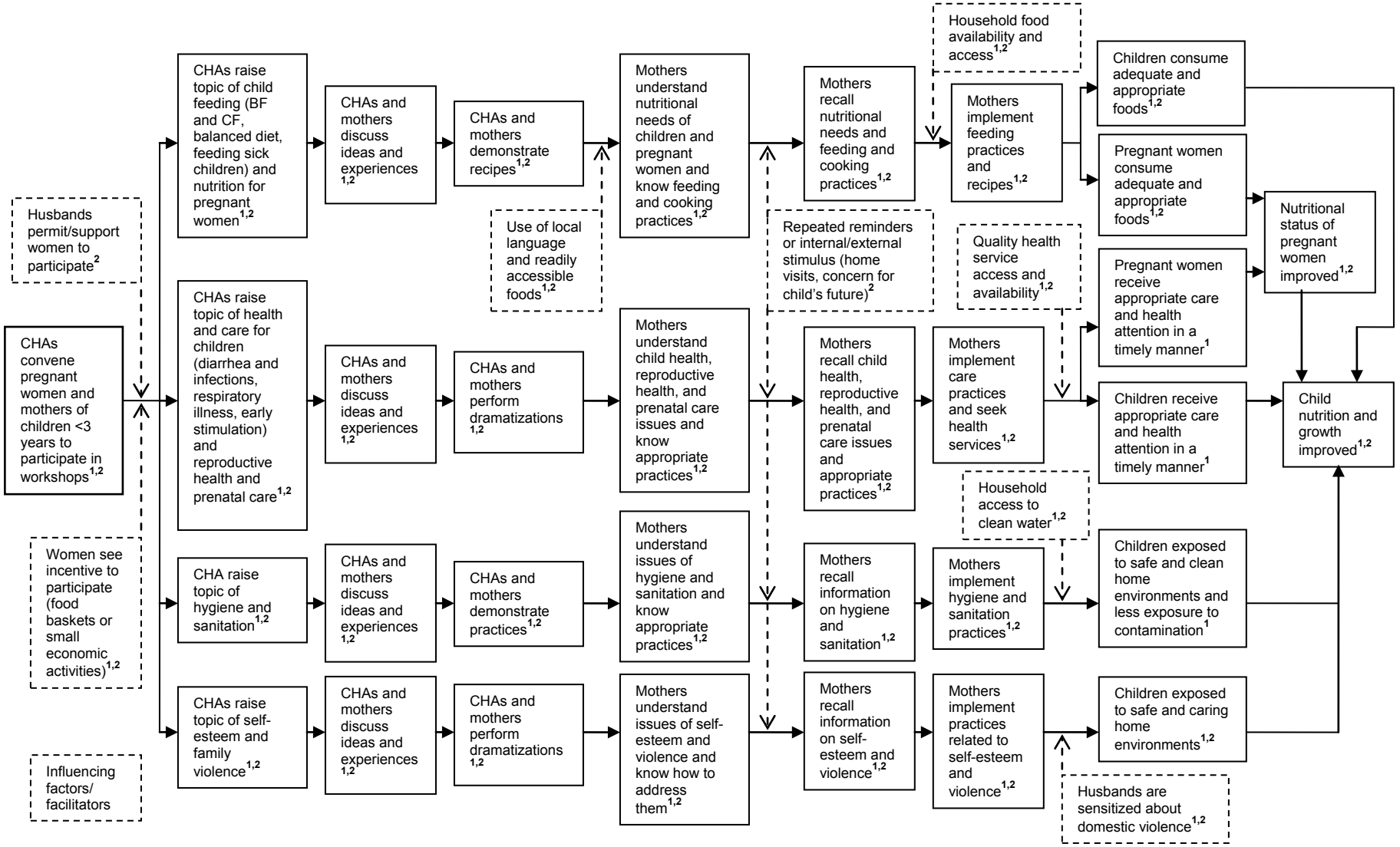
Most of the PNI program actors described a fragmented view or understanding of how the program worked stepwise to reduce childhood chronic malnutrition, even when focusing on a single activity. Program actors at the national and regional levels, who were both ADRA-Peru project staff, provided more cohesive and complete descriptions of the pathways. Although actors at the local level gave more incomplete responses about the pathways, they provided more examples of barriers and facilitators for certain actions along the pathways. The responses of all five PNI program actors were combined to construct the illustrative impact pathways of mothers' workshops (Figure 4.4). In the diagram, responses of national and regional actors and local actors are indicated by a superscript *1* and *2*, respectively.

Nearly all of the program actors identified the first step of the activity as the CHAs convening the mothers on a regular basis to participate in the workshops. This initial step hinged on two important factors. First, the women needed an additional incentive for taking time away from their work and family to participate, because the opportunity to learn how to improve their children's health and nutrition or living conditions was often an insufficient incentive to ensure regular participation. Second, local program actors identified the importance of women obtaining approval from their husbands to continue participating.

After the mothers were convened, the CHAs had to be prepared to raise different topics for both discussion and practice (demonstrations or dramatizations), so that mothers heard and observed information of relevance and interest, observed and participated in examples of practices, and stayed engaged throughout the workshop. The use of the local language spoken by the mothers and use of foods or materials that were locally and readily available were essential in ensuring that the information and practices were accepted and understood.

After the mothers returned to their homes, they were expected to recall what they learned and put them into practice. Most of the local actors pointed out that mothers always forgot when they returned home, so triggers or stimuli from within themselves or external sources such as follow-up home visits by CHAs were necessary. Cooking and lifestyle habits or customs were deeply rooted in their culture and daily routines, so repetitive reminders or stimuli were necessary. The mothers' practices were also influenced by household access and availability to resources and services; thus, CHAs or other program actors needed to be prepared to address these issues or provide alternative solutions.

Figure 4.4—Impact pathways of mothers' workshops



Source: Authors.
Notes: BF = breastfeeding; CF = complementary feeding.
[1] Identified by interviewees at national or regional levels.[2] Identified by interviewees at local level.

Following the implementation of the practices by mothers at home, there was very little explanation about how the practices influenced a child's growth and nutrition, particularly among the local actors. After mothers conduct the appropriate practices, it was assumed by CHAs that improved child growth and nutrition would simply result.

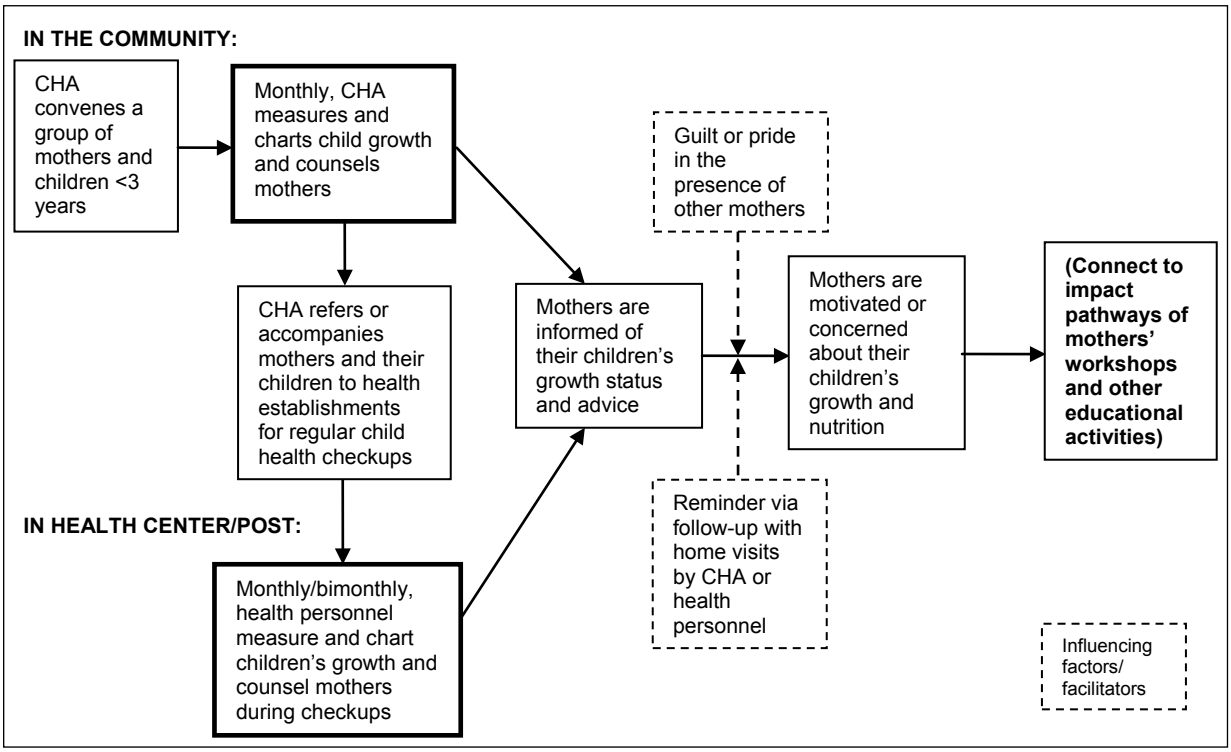
There was clearer understanding of how the activity proceeded to the outputs and immediate outcomes (knowledge and recall), but the intermediate outcomes (practice at home by mothers) were mostly assumed to lead directly to the final health and nutrition outcomes in children. Thus, the mapping of the impact pathways of the mothers' workshops elucidated the stepwise process of the activity and its impact and identified gaps in understanding within the pathways.

Impact Pathway of Growth Monitoring and Promotion

Growth monitoring and promotion (GMP) was another activity within PNI's first program component (maternal and child health and nutrition). In PNI, GMP was both a community-based and a clinic-based activity and was applied as an educational and promotional tool aimed primarily at mothers of young children. The impact pathway of GMP is shown in Figure 4.5, with the two moments that growth measurements were taken indicated in bold.

GMP was an activity performed regularly by CHAs within the community. CHAs were trained and equipped to measure and chart children's growth and to counsel and motivate mothers on a monthly basis. CHAs also used growth monitoring as an educational tool during mothers' workshops. Because GMP by the CHAs was done in groups of mothers, local program actors mentioned that the sense of guilt or pride in the presence of peers helped motivate mothers to action. CHAs also referred mothers to the local health establishment for regular child health checkups, which included GMP performed by health personnel. Thus, GMP was reinforced in the community and in the clinic, and mothers were repeatedly informed of their children's growth status and what to do about it. Then they were reminded during home visits and other educational activities by CHAs and health personnel to stimulate their motivation.

Figure 4.5—Impact pathway of GMP within PNI



Source: Authors.

PNI actors considered GMP to be an important activity within the overall program, because it motivated mothers to take action in improving their feeding and care practices. Community-based GMP performed by CHAs was strongly emphasized in the program. CHAs received training in anthropometric measurements from ADRA-Peru program staff and health personnel, and CHAs highly valued their ready capacity to make nutritional assessments and provide personalized counseling to mothers directly in the community. As a result of the community-based GMP, CHAs also felt empowered because they got to handle data and felt a sense of purpose in their roles. However, health personnel at local health establishments expressed doubts about the accuracy and precision of the growth monitoring data measured by CHAs and did not accept the measurements made by CHAs for any official record use. Still, the GMP impact pathways reveal that in PNI, the repetitive measurements and counseling coupled with follow-up reminders were connected to other educational activities of the program and parts of the process involved in motivating mothers to participation and action.

5. CARE-PERU'S SUSTAINABLE NETWORKS FOR FOOD SECURITY (REDESA)

Program Overview

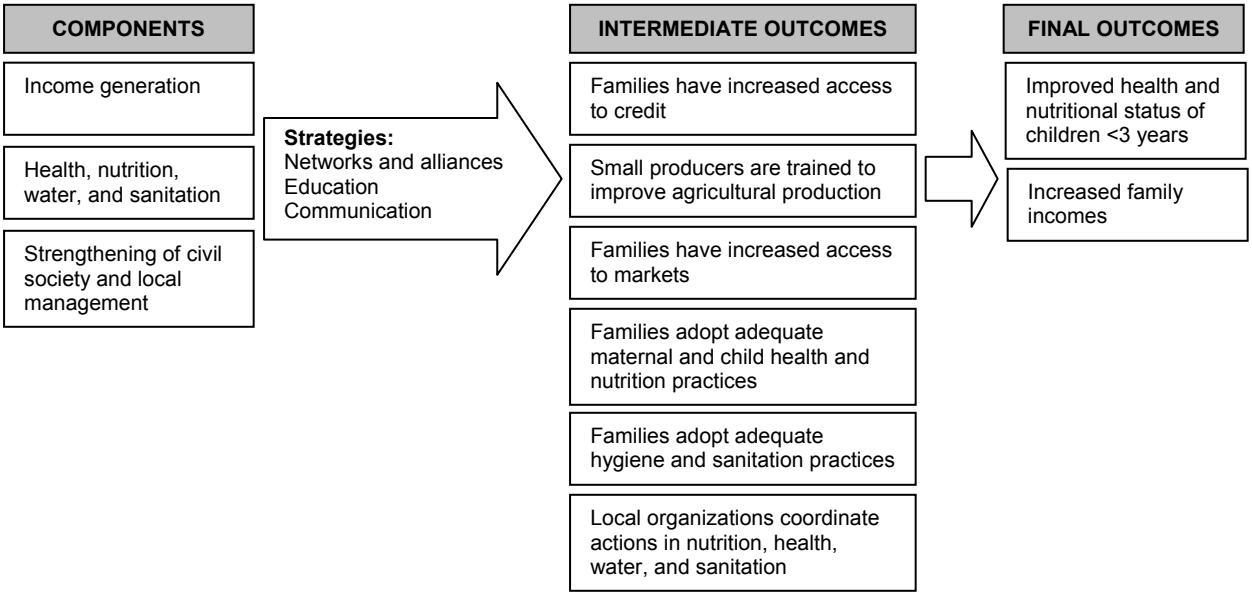
What Is the Program?

Sustainable Networks for Food Security (REDESA) was a five-year project (2001–2006) supported by USAID P.L. 480 Title II program funds. REDESA focused on building networks of local organizations to achieve sustainable food security, based on combined interventions to increase income generation and improve health conditions.

REDESA was a comprehensive integrated program involving entire communities, aimed at increasing access to incomes, health services, water, and sanitation. Its numerous activities included training and technical assistance for small producers (that is, improving agricultural practices and raising small animals such as guinea pigs); installation of water systems and latrines; formation of community water boards to maintain water systems; biweekly or monthly educational sessions and food preparation demonstrations for mothers; communitywide communication activities (for example, radio messages and programs, theater performances, and community educational sessions); formation of community development committees to coordinate actions in health, nutrition, and sanitation; and formation of community surveillance systems for health, nutrition, agriculture, and sanitation conditions. The explicit strategies for REDESA were building networks and alliances, education, and communication.

According to the program documents, REDESA consisted of three major components: (1) income generation; (2) health, nutrition, water, and sanitation; and (3) strengthening of civil society and local management. Activities within each component, through the strategies of building networks, education, and communication, were expected to result in six main intermediate outcomes: (1) increased access to credit; (2) increased training to improve agricultural production; (3) increased access to markets; (4) improved maternal and child health and nutrition practices; (5) improved hygiene and sanitation practices; and (6) improved coordination of actions in nutrition, health, water, and sanitation. The intermediate outcomes led to the final outcomes of improved health and nutritional status of children younger than three years of age and increased family incomes. This general program model is shown in Figure 5.1.

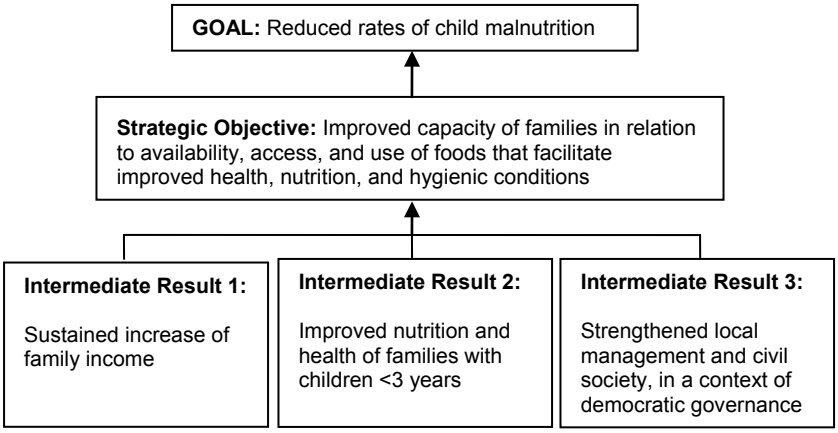
Figure 5.1—REDESA program model



Source: CARE-Peru (2007).

The results framework of REDESA was presented in the program documents (Figure 5.2). In the results framework, increased family income was not presented as a goal, but rather an intermediate result that led to families' improved capacity to access and use foods, which resulted in reduced child malnutrition. Thus, there was a slight discrepancy between the general program model and the results framework, or a lack of clarity in the logic connecting the end results, perhaps due to the simplified three-tiered leveling of the results framework. REDESA consisted of both upstream and direct interventions, and these relationships are not captured in either the general program model or the results framework.

Figure 5.2—REDESA results framework



Source: CARE-Peru (2007).

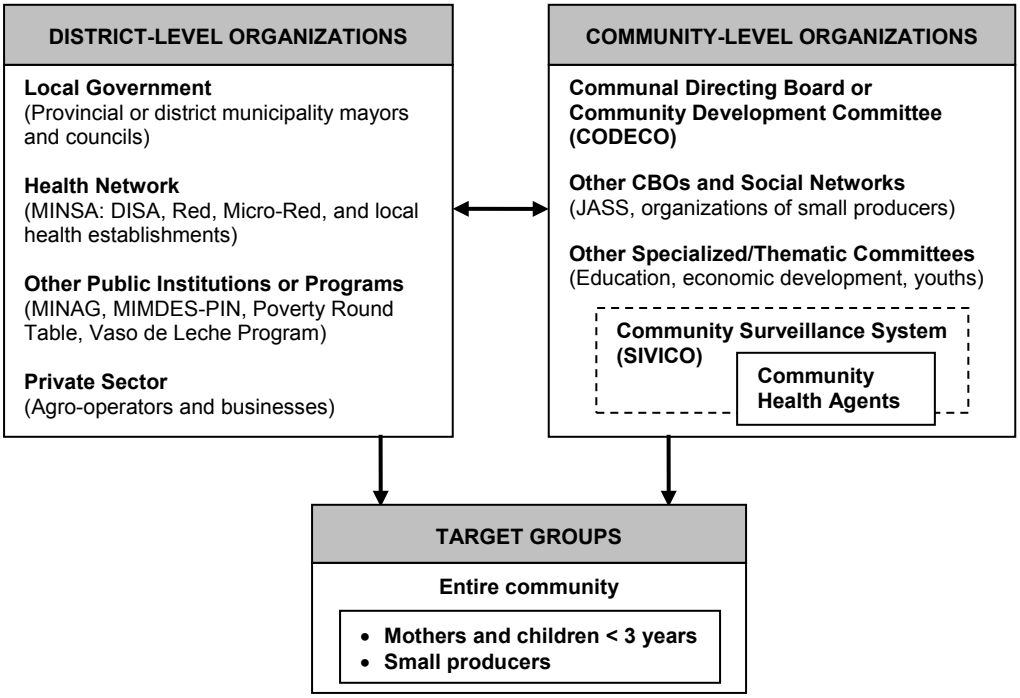
The explicit program model and results framework provide a general program overview. Although CARE-Peru program staff used a more detailed logistic framework to monitor progress of their activities, greater detail on the relationships among the immediate, intermediate, and final outcomes was not provided in the program documents. CARE-Peru produced an extensive number of program documents (more than 60 manuals, reports, and other documents) to systematize its experiences and lessons learned from REDESA, but there was no further documentation of a program logic model or framework.

Who Is Involved?

REDESA involved various community-based organizations (CBOs) and actors within the community, and its main target groups were mothers of children younger than three years of age and small agricultural producers. REDESA also worked closely with public and private institutions and organizations at the district level. The organizational schema for REDESA is shown in Figure 5.3.

At the community level, REDESA tried to form a Community Development Committee (CODECO) and coordinated with an existing communal directing board. A water board (JASS, for its acronym in Spanish) was formed to maintain the potable water system, and organizations of small producers were formed by types of agricultural crops and products. Community committees for education, youths, and other issues and other community leaders were convened to participate in the program and coordinate activities in health, nutrition, and sanitation. The entire community was involved and informed of the health and development status of their community (for example, nutritional status of pregnant women and small children, access to water systems and latrines, and so on) through the Community Surveillance System (SIVICO), which was updated and monitored directly by CHAs and/or local health personnel. The SIVICO consisted of charts and a physical mapping of the entire community in relation to the status of health, nutrition, water, and sanitation.

Figure 5.3—REDESA organizational schema at the local level



Source: Compiled from list of documents in Appendix Table A.1 by authors.

At the district level, REDESA coordinated with the local government; the health network; other public institutions or programs involved in health, food, or agriculture; and private institutions and businesses connected to agriculture. REDESA advocated and coordinated with the local government to include activities related to food security in local participatory budgets and local development plans. REDESA coordinated with the different levels of MINSA (that is, DISA, Red, Micro-Red, and local health establishments) in all activities related to health, nutrition, and hygiene. Rather than creating their own activities and materials on these topics, REDESA adapted or replicated and disseminated MINSA's materials and methods. REDESA also coordinated with other public institutions and programs, including the Ministry of Agriculture (MINSA), the Integrated Nutrition Program (PIN), the Poverty Round Table (an intersectoral coordinating forum against poverty), and the Vaso de Leche Program. Agro-operators and businesses were involved in economic activities, particularly where REDESA tried to connect small producers to the market.

Logical Framework of Local Institutional Capacity-Building

Local institutional capacity-building is an overarching activity within the third component (strengthening civil society and local management) of REDESA's program model (Figure 5.1). The activity involves strengthening the capacity among community actors to work together in activities of health, nutrition, water, and sanitation. This activity actually involves three interconnected sub-activities: (1) the formation of Community Development Committees (CODECOs), (2) the development of Community Surveillance Systems (SIVICO), and (3) training in leadership and governance. Program actors described the sub-activities together as one cohesive activity, so they were combined in the logical framework and later in the impact pathway.

The logical framework for local institutional capacity-building is shown in Table 5.1. The logical framework includes the rationale and assumptions, inputs, target population, outputs, and outcomes of the activity. The rationales for the activity were the need for the entire community's attention and action to

improve child health and nutrition, and the importance of adequate leadership and governance for the effectiveness of related actions. It was assumed that gaps between the needs and actions of the various organizations in the community exist. In order to close these gaps, all the community leaders and organizations met regularly (convened by CODECO), learned about their community situation (through SIVICO), exchanged ideas, and discussed a shared vision for their actions. Afterward, local actors were expected to refocus or adjust their activities according to the shared vision as well as contribute to actions in a coordination plan, which, in turn, was expected to result in improved child health and nutrition through the implementation of the different activities in health, nutrition, water, and sanitation. Given that local institutional capacity-building is a broad upstream activity, the logical framework does not capture all the steps involved or the factors influencing the different steps. This illustrative framework reveals the large leaps in logic from the inputs to the outputs, and from the outputs to the outcomes

Impact Pathway of Local Institutional Capacity-Building

At the core of REDESA's intervention strategies are the formation of relevant organizations and the establishment of networks and alliances among local organizations. In particular, the formation of the Community Development Committee (CODECO) and the Community Surveillance System (SIVICO) to monitor the community health, nutrition, water, and sanitation status were key activities. Based on the responses of all six REDESA program actors, the impact pathway for local institutional capacity-building to work together in health, nutrition, water, and sanitation was elaborated (Figure 5.4). In the diagram, responses of national and regional actors and local actors are indicated by a superscript *1* and *2*, respectively.

The national and regional program actors expressed a clear and cohesive understanding of the overall integrated components and intersectoral focus of the program, specifically on building networks and strategic alliances. In describing program activities, actors at the national and regional levels used similar terms and expressed similar ideas. They provided relatively cohesive explanations of how the activities led to the immediate outcomes related to learning and knowledge, but little explanation as to how the immediate outcomes (behavior changes) connected to the final outcome of improving child health and nutrition. The two local actors expressed more fragmented views of the impact pathway.

Given the main assumption that there is poor organization, coordination, and leadership in the communities, particularly around the issues of health and nutrition, the first step of the activity involved sensitizing the community about the need for organization and coordination of local actions and training community members about CODECO and SIVICO. This first step relied on an external expert, introduced to the community by CARE-Peru or the local government. Once the community was convinced of the need for a community coordinating body related to health and nutrition and for a system to monitor the community around these issues, a CODECO or a similar organization and a SIVICO were formed. Local program actors mentioned that the intervention of the external expert was important because when trying to change status quo, the community was more likely to listen to an external person. A higher value was placed on ideas delivered by external actors.

Health personnel, CHAs, or other designated local actors were responsible for updating the SIVICO regularly, so community members could see the ongoing situation in their community. CODECO leaders also needed to convene regular meetings to discuss the status and needs in their community. The continual proceedings of community coordination depended on the leadership of CODECO.

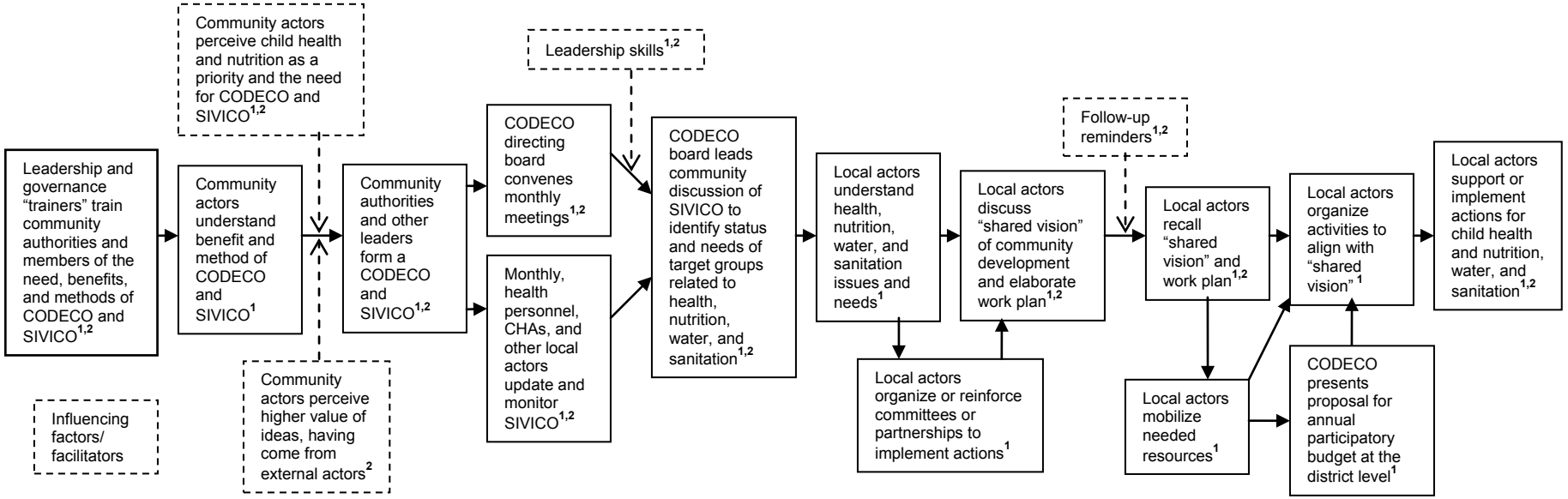
Once local actors understood the issues and needs in the community, they discussed a shared vision of their community and developed a work plan for the year. After the CODECO meetings, local actors were expected to recall the shared vision and work plan, and organize and implement actions accordingly, mobilizing human, financial, and other resources within their reach of influence. The collaborative effort in executing the community work plan required regular follow-up and reminders by CODECO and other actors.

Table 5.1—Logical framework of local institutional capacity-building

Rationale and Assumptions	Resources/ Inputs	Activities	Target Population	Outputs	Proximal or Immediate Outcomes	Intermediate Outcomes	Final Outcomes
COMPONENT 3. Strengthening civil society and local management							
Improving child growth, health, and nutrition requires attention and action of the entire community Poor leadership and governance contribute to inefficiency and ineffectiveness of programs Gaps exist between needs and actions of various organizations	Trainers in leadership and governance Motivated and trained community leaders and local authorities Materials and supplies (for example, charts, markers, posters) Refreshments Space or facility Transportation Time	Strengthening institutional capacity of community actors to work together in health, nutrition, water, and sanitation (including formation of CODECOs, development of SIVICOs, and training in leadership and governance)	Community leaders, CBOs, NGOs, and community members	Local actors regularly participate in joint (intersectoral) meetings Local actors know and understand the health and nutrition issues and the current situation in their community Local actors have a shared vision of how to address the issues in their communities Local actors are aware of what others are doing, including own role and responsibilities Annual coordination plan	Local actors recall shared vision Local actors refocus and adjust their activities to align with shared vision regarding target groups, intended impact, and routes to impact Local actors support and implement actions according to shared vision and coordination plan (availability, access to, and quality of health services, foods, nutrition education, social communication, training, water, and sanitation systems)	See proximal and intermediate outcomes for all activities under Component 2: • Social communication on child health and nutrition, water, and sanitation • Biweekly or monthly educational sessions for mothers • Home visits • Promotion of access to health services (referrals to health services) • Training of CHAs Installation of water systems • Installation of latrines • Organization and strengthening of JASS (water board)	Child growth, health, and nutrition improved

Source: Compiled from list of documents in Appendix Table A.1 by authors.

Figure 5.4—Impact pathway of local institutional capacity-building



Source: Compiled by authors.
Notes: [1] Identified by interviewees at national or regional levels. [2] Identified by interviewees at local level.

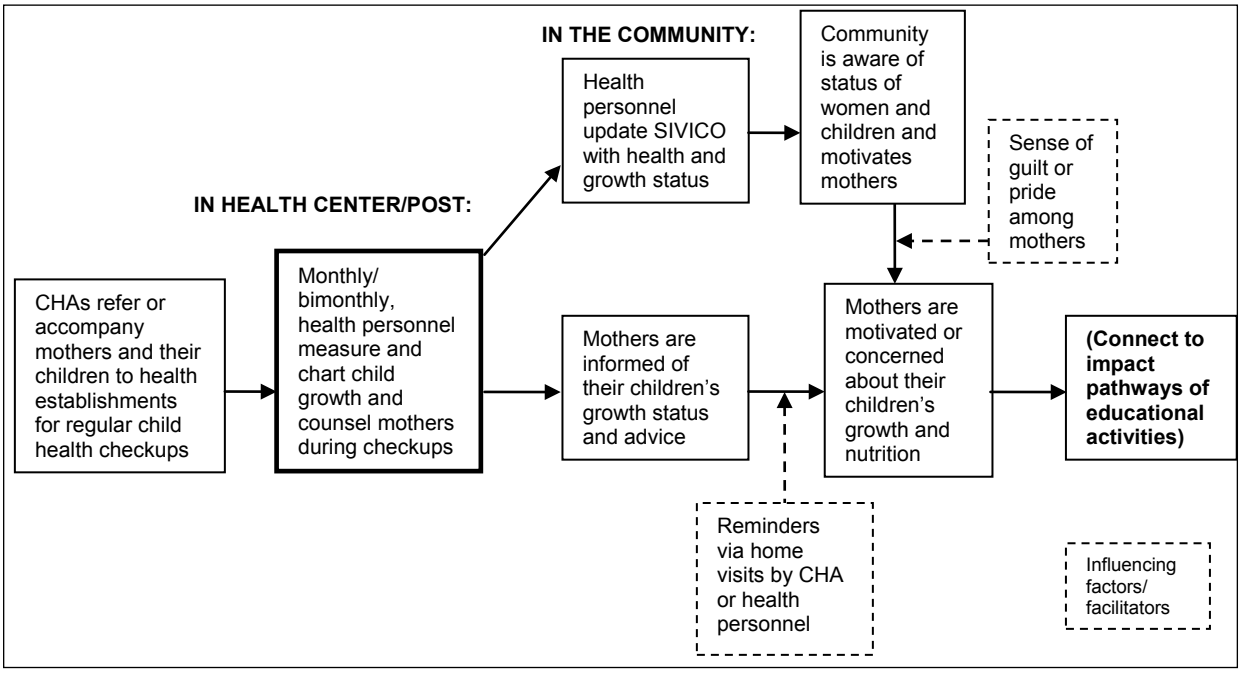
The pathway of this activity was described up to the point of the intermediate outcome, with the outcome of local actors working together to support or implement activities directly related to health, nutrition, water, and sanitation. Because this activity was an upstream intervention, it was expected that this activity would lead to more efficient and effective implementation of other activities directly intervening with target groups, for example, activities within the second component of the REDESA program model (Figure 5.1). This impact pathway, although incomplete, shows the stepwise process by which the local actors were expected to come together, monitor, and discuss the situation in their community, and work under some sort of shared plan.

Impact Pathway of Growth Monitoring and Promotion

Within REDESA, growth monitoring and promotion (GMP) was as a clinic-based activity and solely part of the regular child health checkups provided by local health personnel. The impact pathway of GMP within REDESA is shown in Figure 5.5. GMP was a peripheral activity in the overall REDESA program. CHAs played the role of making referrals or accompanying mothers and children to the local health establishments to receive GMP.

In REDESA, GMP was applied as a motivational and promotional tool aimed at mothers of young children as well as the entire community. During the regular child health checkups, brief individualized counseling was provided to mothers to interpret the growth charts, help them understand the status of their children, and provide short messages about what they should do. Also, health personnel updated the health and growth data for all young children and pregnant women in the community within the SIVICO, in order to build community awareness. Local program actors also indicated that the open surveillance system stirred the sense of guilt specifically among mothers, which acted as a motivator to action. In order to reinforce the mothers' understanding of their children's health and growth status, health personnel and CHAs also provided talks and followed up with home visits.

Figure 5.5—Impact pathway of GMP within REDESA



Source: Compiled by authors.

Within REDESA, CHAs were not trained or encouraged to perform GMP in the communities because this activity was seen to require precision and accuracy in the hands of skilled health personnel. This impact pathway reveals that GMP was an activity handled by health personnel and a motivational and promotional tool used for mothers and the entire community.

6. UNICEF'S GOOD START

Program Overview

What Is the Program?

Good Start was an intervention program developed by UNICEF with a five-year funding support from USAID during the years 1999 to 2004. The first year was dedicated to formative research to design and assess the acceptability of the intervention activities and training of personnel. Thus, UNICEF actually continued its support in program operations until 2005.

UNICEF had a different mode of program implementation than ADRA-Peru and CARE-Peru. Rather than working directly with communities, UNICEF worked through regional NGOs or government health networks that delivered the Good Start program in the communities and provided direct support. Despite having the same donor (i.e., USAID), Good Start had neither a program model nor a results framework in its program documents. Unlike ADRA and CARE, UNICEF used different terminology to describe its programmatic elements. In the program documents, Good Start was described in terms of driving principles, thematic areas, intervention strategies, and process methods.

First, Good Start had four driving principles regarding the promotion of early growth and development (UNICEF 2007). The program

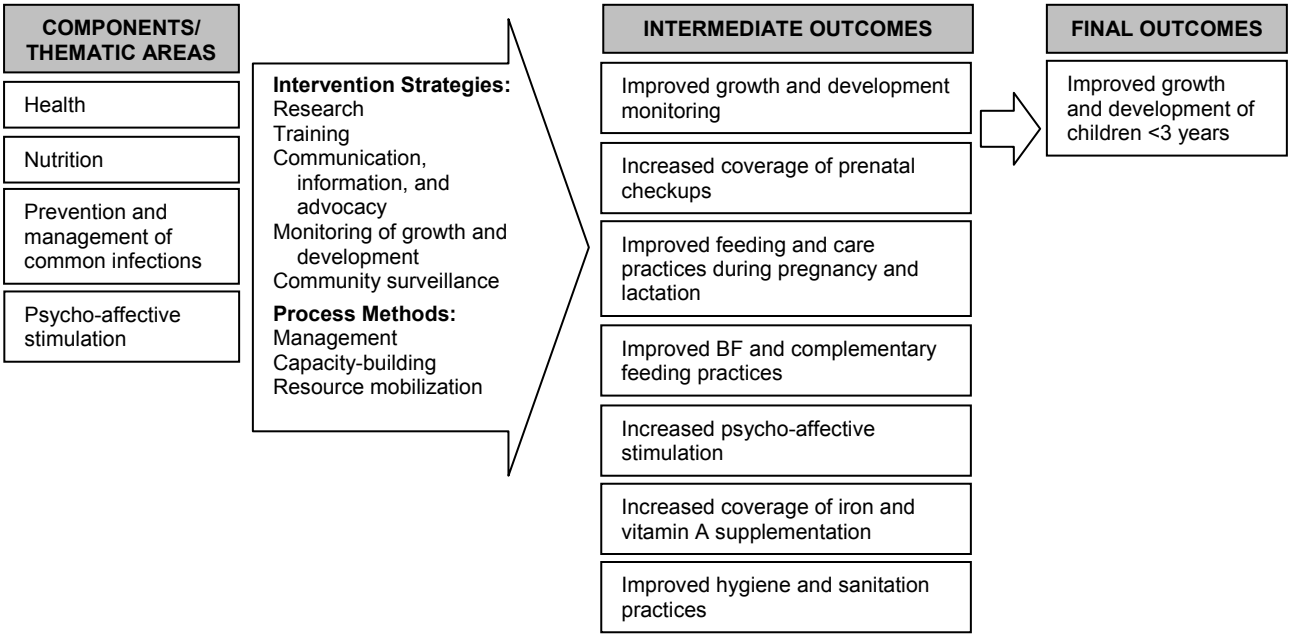
1. Initiated action in the *earliest stage of gestation*;
2. Was conceived as the *integrated delivery of health, nutrition, hygiene, and psycho-affective stimulation* in the family and the community, in order to adequately meet a child's needs;
3. Aimed to *improve practices and the use of available resources*, particularly with regard to the interrelationships between childcare and growth and development; and
4. Placed the responsibility on the *family and the community*, with their capacity to create demand for quality services and the political support necessary to promote early growth and development in an integrated and sustainable manner.

Second, Good Start was described as having four thematic areas: health, nutrition, prevention and management of common infections, and psycho-affective stimulation. Next, the five intervention strategies to achieve its final outcome of improved growth and development of children younger than three years of age included research; training; communication, information, and advocacy; monitoring of growth and development; and community surveillance. The seven main intermediate outcomes measured were

1. improved growth and development monitoring;
2. increased coverage of prenatal checkups;
3. improved feeding and care practices during pregnancy and lactation;
4. improved breastfeeding and complementary feeding practices;
5. increased psycho-affective stimulation;
6. increased coverage of iron and vitamin A supplementation; and
7. improved hygiene and sanitation practices.

Finally, UNICEF identified three process methods in its program operations: management, capacity-building, and resource mobilization. Despite the use of many different terms, we elaborated a general program model in the format similar to the previous two programs (see Figure 6.1).

Figure 6.1—Good Start program model

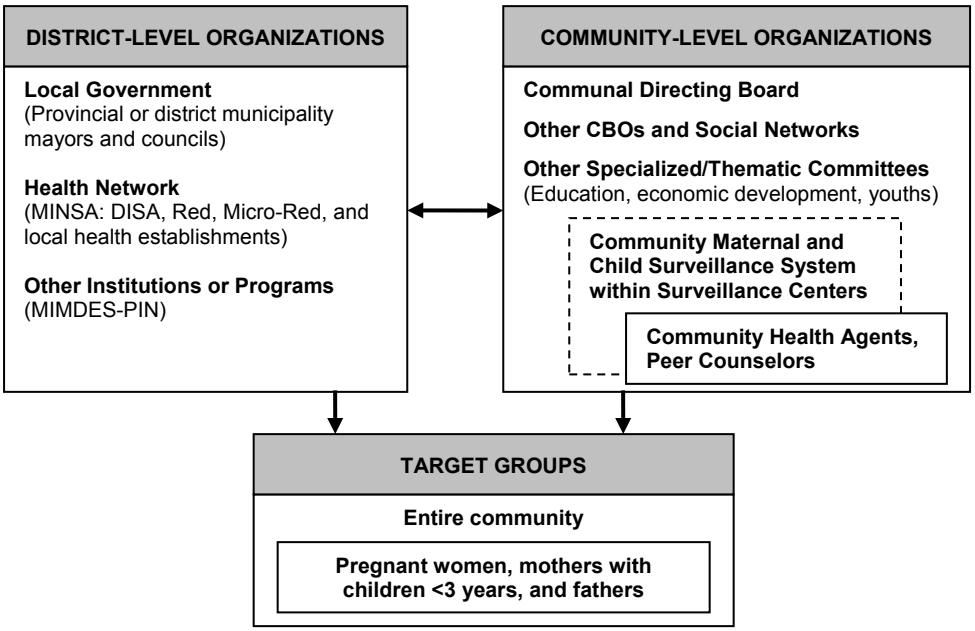


Source: Compiled from list of documents in Appendix Table A.1 by authors.

Who Is Involved?

UNICEF worked with the project staff of regional NGOs and health officials and personnel at the regional and local levels. However, at the local level, the organizational schema for Good Start (Figure 6.2) was similar to that of PNI and REDESA.

Figure 6.2—Good Start organizational schema at the local level



Source: Compiled from list of documents in Appendix Table A.1 by authors.

At the community level, the existing community directing board was involved in coordinating Good Start, along with other existing CBOs such as the community water board and various thematic committees. The entire community participated in social communication and other community-wide activities, and was informed of the maternal and child health and nutrition situation in the community through the Maternal and Child Community Surveillance System (SIVICOMI). The system was directly updated and managed by local health personnel with the support of CHAs. The surveillance system involved the identification, mapping, and registration of all pregnant women and small children in the community, and its charts and maps were posted at a surveillance center or communal house where mothers and children met regularly for educational and stimulation sessions. Local health personnel, CHAs, and/or peer counselors (formed in some communities) were involved in the direct educational activities for parents with small children. Although Good Start targeted the entire community, its primary target groups were pregnant women, mothers with children younger than three years of age, and fathers.

At the district level, Good Start involved the local government, the health network, and other public institutions or programs related to health and nutrition. UNICEF, together with the regional NGOs, advocated and coordinated with the local government in the implementation of activities related to Good Start and the inclusion of activities related to child growth and development in participatory budgets and local development plans. UNICEF coordinated closely with the different levels of MINSA (that is, DISA, Red, Micro-Red, and local health establishments), because activities in health, nutrition, prevention and management of common diseases, and psycho-affective stimulation were all areas of the government health system's work. Also, UNICEF directly trained health personnel to improve health services and increase access and usage of said services, particularly by mothers and small children. UNICEF coordinated with other public institutions and programs, such as the Integrated Nutrition Program (PIN), in the implementation of activities.

Logical Framework of Peer Counseling and Early Stimulation Sessions

As previously described, Good Start consisted of four thematic areas: health, nutrition, prevention and management of common infections, and psycho-affective stimulation. To address these thematic areas, program actors identified four main activities: (1) social communication on health, nutrition, growth, and development; (2) counseling and early stimulation sessions at Community Surveillance Centers or local health establishments; (3) community surveillance of maternal and child health and nutrition; and (4) training of community health agents and peer counselors. The logical framework for peer counseling and early stimulation sessions is shown in Table 6.1. Similar to the previous examples, the logical framework was constructed with the rationale and assumptions, inputs, target population, outputs, and outcomes.

The rationale and assumptions for peer counseling and early stimulation were similar to those for the mothers' workshops in PNI, that is, lack of knowledge among mothers and access to and availability of foods. Thus, Good Start focused on education and on instructing parents about appropriate practices. Good Start also focused on methods of learning and materials that were socially and culturally relevant in the geographical region of the rural highlands. Thus, in-depth formative research was conducted prior to program implementation, resulting in methods and materials such as the use of peer counselors, instructional posters with photographs of local peoples, and stimulation toys using locally available materials. During the peer counseling and early stimulation sessions, health personnel made assessments, and then with CHAs and peer counselors they facilitated discussions and practices related to health, nutrition, and psycho-affective stimulation with mothers and fathers. As a result, mothers and fathers were expected to recall and implement these practices in their homes, and seek timely health services. Thereafter, the intermediate outcomes in children and pregnant women were expected to be achieved, resulting in improved child growth and development. As with the previous logical frameworks, a logical sequence is presented, but the processes are not defined in the logical framework.

Table 6.1—Logical framework for peer counseling and early stimulation sessions

Rationale and Assumptions	Resources/ Inputs	Activities	Target Population	Outputs	Proximal or Immediate Outcomes	Intermediate Outcomes	Final Outcomes
Mothers require knowledge and understanding of health and nutrition issues and how to address them Socially and culturally relevant methods of learning strengthen lasting knowledge and lead to appropriate and feasible solutions Access to and availability of foods, facilities, and other resources to implement actions at the household level exist (for example, through social programs)	Trained health personnel Trained community health agents (CHA) and peer counselors Materials and supplies (for example, stimulation toys, charts, photos, markers, posters) Space or facility Time Monitoring and supervision	Counseling and early stimulation sessions at Community Surveillance Centers or at local health establishments	Pregnant women and mothers of children < 3 years and fathers	Health personnel assess health and nutritional status of pregnant women and motor, language, and emotional development of children Health personnel, CHAs, and/or peer counselors facilitate discussions on health, nutrition, and development, and practice activities related to psycho-affective stimulation Mothers and fathers are informed of their children's health and growth progress and receive adequate and appropriate information on health, nutrition, development, and early stimulation	Mothers and fathers recall information and practices Mothers and fathers prioritize pregnant women and small children Mothers and fathers implement actions to prevent health and nutrition problems and promote growth and development (that is, improved feeding, health, and stimulation practices) Mothers recognize signs of health or nutrition problems Mothers seek out health services in a timely manner	Children receive EBF for 6 months, then consume adequate and appropriate complementary foods with continued BF Children receive timely and adequate health attention (that is, iron and vitamin A supplementation) Children receive appropriate care and stimulation Pregnant women consume sufficient and appropriate foods Pregnant women receive timely and adequate prenatal care and health services	Child growth and development improved

Source: Compiled from list of documents in Appendix Table A.1 by authors.
Notes: EBF = exclusive breastfeeding; BF = breastfeeding.

Impact Pathway of Peer Counseling and Early Stimulation Sessions

The impact pathway of peer counseling and early stimulation sessions was constructed from responses of all nine Good Start program actors and is shown in Figure 6.3. Responses of the seven national and regional actors and the two local actors are indicated by a superscript *1* and *2*, respectively.

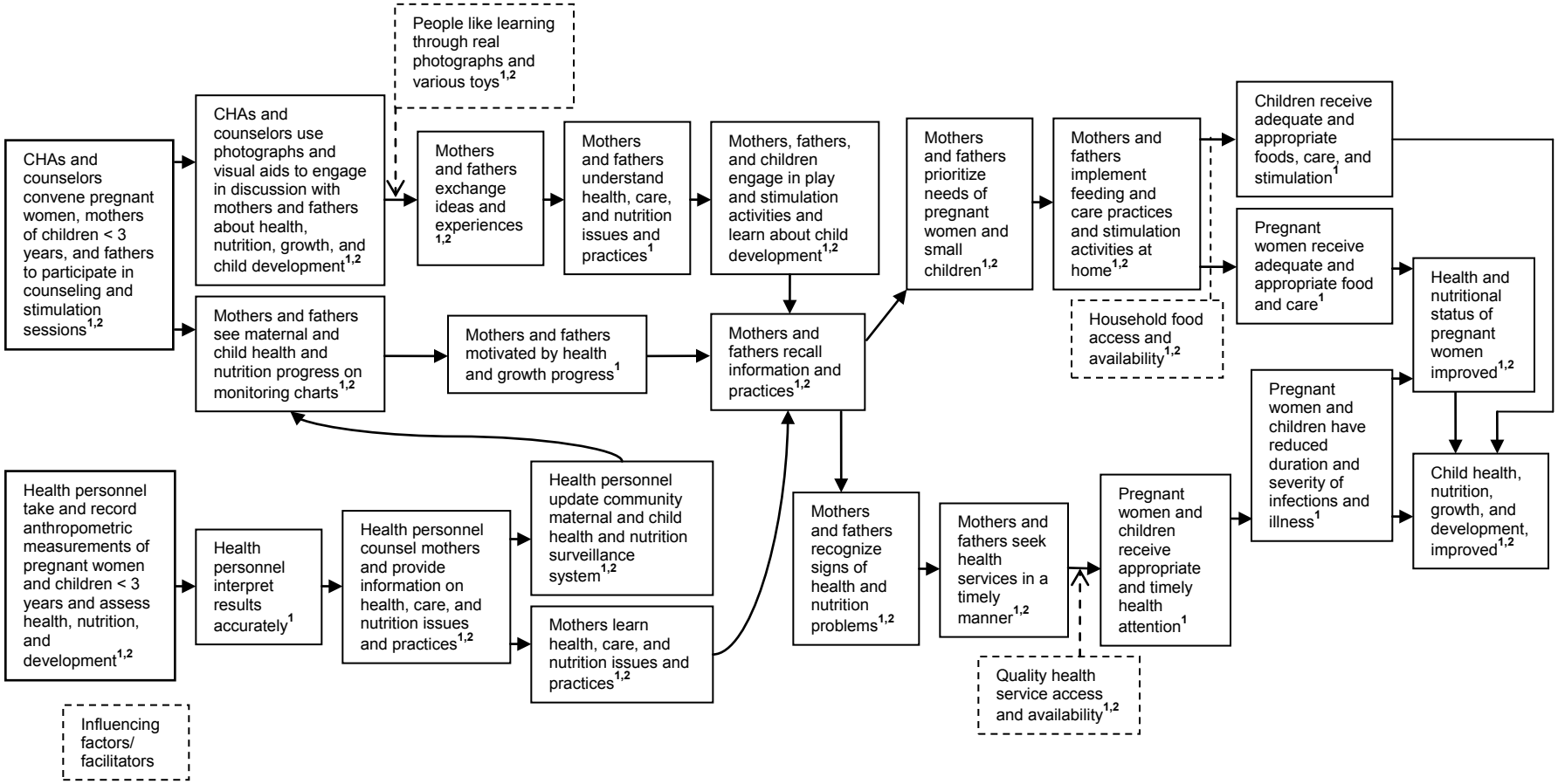
National and regional program actors included those from UNICEF and the regional NGOs. They demonstrated a clear understanding of the principles and thematic areas of the overall program as well as the pathways by which activities led to immediate outcomes related to learning and knowledge. The connections among the immediate, intermediate, and final outcomes were short and direct, where adequate nutrition or feeding practices were expected to lead to adequate nutritional status and improved child growth and development. In the case of health, reduced illness or infection was identified as a mediator to adequate health and nutritional status. The views of the impact pathway by the two local actors were more fragmented. There was also little difference in the mention of factors that influenced the different steps of the activity between the national and regional actors and the local actors.

There were several parallel events that constituted the activity of peer counseling and early stimulation sessions. First, health personnel conducted checkups of pregnant women and small children, including growth monitoring and health and development assessments (for example, motor, language, and emotional development). As part of the trainings provided by UNICEF, local health personnel were carefully standardized in anthropometric measurements and methods for maternal and child health checkups. Thus, health personnel usually interpreted the results accurately, in order to counsel mothers on health, care, and nutrition concerns and appropriate practices. The knowledge and understanding gained by mothers about these issues contributed to their recall of information and practices at home. Second, health personnel also used the assessment data to update the community surveillance system (that is, charts posted in the Community Surveillance Center, a communal facility designated by the community for Good Start activities).

And third, CHAs and/or peer counselors convened pregnant women, mothers with children younger than three years of age, and fathers to participate in the regular counseling and stimulation sessions. Health personnel, CHAs, or peer counselors facilitated participatory discussions around issues of health, nutrition, growth, and development to aid parents in understanding these issues. During the sessions, parents were guided in play and psycho-affective stimulation practices. CHAs, peer counselors, and parents enjoyed the use of real photographs as a teaching tool and the different types of locally made toys, which facilitated participation during the sessions. The combination of participatory discussion and practices focused on early stimulation was expected to lead to the recall of information and practices at home. During the sessions, parents also observed maps and charts of their children's health and growth status. This public display was expected to build awareness and motivate parents to take action and reinforce recall and practices at home.

The immediate outcome of information recall by parents was expected to lead to various practices (intermediate outcomes). First, mothers and fathers would recall priority needs of pregnant women and small children, and implement adequate and appropriate feeding and care practices at home. These practices were influenced by household food access and availability. Second, parents would recognize any signs of health and nutrition problems and seek health services in a timely manner. This health-seeking behavior was influenced by access to and availability of quality health services, and it was also expected that parents would increase their demand for quality health services. Both the improved feeding and care practices and the health-seeking behavior led to improved health and nutritional status of pregnant women and small children, and improved child growth and development.

Figure 6.3—Impact pathway of peer counseling and early stimulation sessions



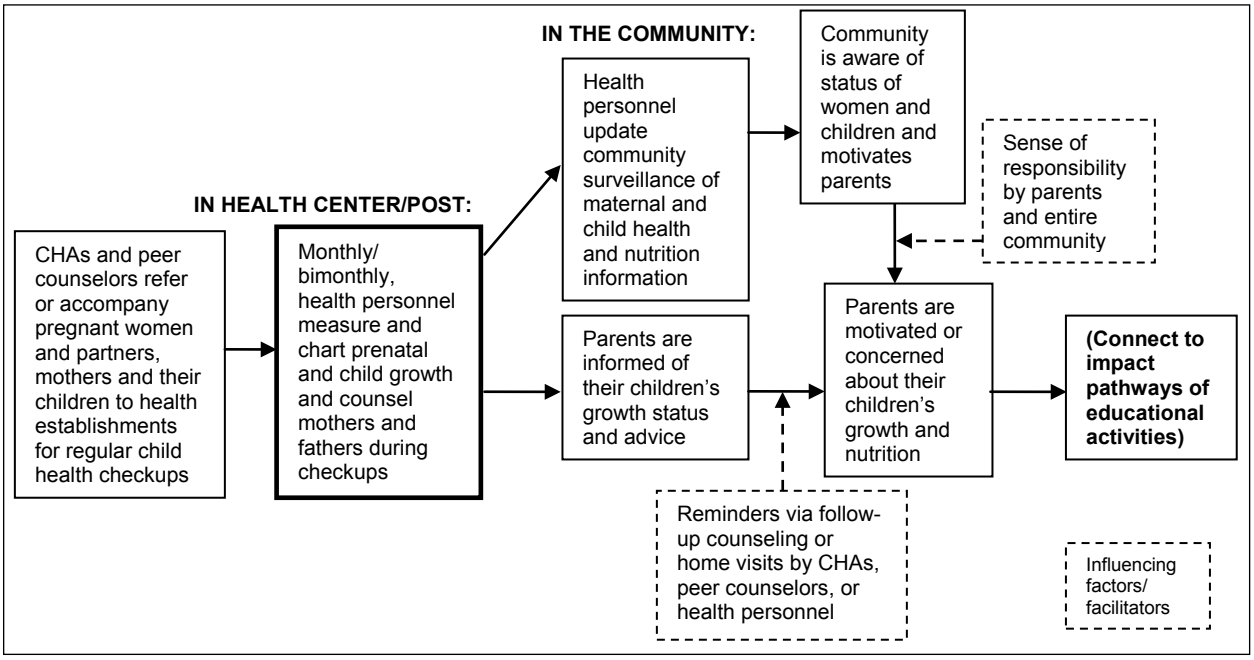
Source: Compiled by authors.
Notes: [1] Identified by interviewees at national or regional levels. [2] Identified by interviewees at local level.

Impact Pathway of Growth Monitoring and Promotion

The impact pathway of growth monitoring and promotion (GMP) within the Good Start program (Figure 6.4) was very similar to that in REDESA. GMP was a peripheral clinic-based activity and part of the regular maternal and child health checkups at the local health establishments. Good Start emphasized the measurement of gestational weight gain as well as child growth. Health personnel were trained and standardized to take precise and accurate anthropometric measurements, interpret growth charts, and provide counseling. The role of CHAs and peer counselors was to make referrals or accompany pregnant women and their partners, and mothers and their children, to the health establishments, in order to increase their access to essential health services.

GMP was applied as an educational and promotional tool aimed at pregnant women, mothers of young children, and fathers, as well as the entire community. In addition to individualized counseling, health personnel updated the community surveillance charts on maternal and child health and nutrition (for example, number of prenatal visits, maternal weight gain, children's growth status, and so on) in order to educate the community and build awareness. Unlike PNI and REDESA program actors, who mentioned guilt and pride sensed by mothers, those involved with Good Start described communal responsibility and accountability as a motivator. Follow-up counseling and home visits were conducted by CHAs, peer counselors, or health personnel to remind families and reinforce health- and nutrition-related messages. Thereafter, the pathway was expected to connect with the pathways of other educational activities of the program that specifically taught parents about appropriate practices that result in improved growth and development of children.

Figure 6.4—Impact pathway of GMP within Good Start



Source: Compiled by authors.

7. DISCUSSION

Comparing Program Models, Logical Frameworks, and PIPs

The program models and logical frameworks serve to compare and contrast the three programs. PNI, REDESA, and Good Start shared three similar elements: (1) program activities were primarily implemented within the community, involving various local actors; (2) activities included education and communication on similar topics of maternal and child health, nutrition, and hygiene; and (3) some version of a community surveillance system to monitor progress of target groups was developed. Most evidently, the three intervention programs shared the same goal of reducing childhood chronic malnutrition.

Despite these similarities, each program had its unique approaches and focus. PNI focused on improving health and nutrition practices through educational sessions or workshops among groups of mothers led by community health agents (CHAs). CHAs were key players in the program, because they directly led the educational sessions and conducted regular growth monitoring and promotion among mothers. REDESA aimed to implement an integrated approach to address food security, combining economic activities, installation of water and sanitation systems, health and nutrition education, and local network building. A community surveillance system to monitor the progress of these various components was developed, and the program emphasized the strengthening of leadership and coordination among local actors. Good Start focused on building capacity of parents and health personnel to address child growth and development, through maternal and child health and nutrition combined with care and early psycho-affective stimulation. Good Start involved mostly local health personnel, CHAs, and parents. Applying its locally appropriate methods and materials, it aimed to change perceptions and practices to improve the physical growth and psychosocial development of children, and established a maternal and child health and nutrition surveillance system to monitor the health status of all pregnant women and small children in the community.

Apart from permitting the comparison of strategies and activities of the intervention programs, the representations of program logic helped reveal the perceptions among different levels of program actors about how the program (activities) works to achieve its results, particularly through the mapping of program impact pathways (PIPs). Although we combined data from all interviews per program to construct a single illustrative PIP for a key activity, we were able to identify segments of uniformity and heterogeneity in perceptions of the impact pathways among national and regional actors and local actors.

National and regional actors, mostly project staff from ADRA-Peru, CARE-Peru, UNICEF, and other regional NGOs, had good understanding of the overarching frameworks and principles of their respective programs as well as the program components and activities. They demonstrated a strong coherence to the program documents. They provided similar cohesive responses and were able to articulate the impact pathways, showing strong standardization of the prescribed activities at these higher levels of program management and operations. Furthermore, program actors connected to NGOs and cooperation agencies had awareness and understanding of programmatic concepts and terms, and thus were more adept at responding to interview questions and articulating their perceived PIPs. However, program actors at the national level identified fewer facilitators and barriers along the impact pathways than did the local actors, revealing that the practical dimensions of the impact pathways were not as evident to planners and managers farther from the communities.

At the same time, while program actors at the local level were more apt to provide practical examples of influencing factors or incidents that occur during implementation, the local actors provided little information about the overarching framework or principles of the program. They had difficulties in fully articulating their perceived PIPs, providing fragmented views of how the activities linked to their outcomes.

Similar patterns were found across the three programs, although the disparity in the articulation of impact pathways between national and regional actors and local actors was less striking in the Good Start program. Given that a major focus of the Good Start program was on locally adapted methods, and that formative research and extensive training were conducted prior to program implementation, program

actors across all levels may have been more aware and capable of articulating the processes and practical influencing factors involved in the PIPs.

Comparing the Impact Pathways of Growth Monitoring and Promotion

The utility of mapping impact pathways to observe differences in the positioning and use of a common activity within programs was revealed through the example of growth monitoring and promotion (GMP). Two different impact pathways of GMP were presented by the three programs. In PNI, GMP was an important community-based and clinic-based activity primarily for educating and motivating mothers to improve their feeding and care practices. Its community-based focus, where CHAs measured children's growth and counseled mothers directly in the community, helped reinforce mothers to take action. In REDESA and Good Start, GMP was a peripheral clinic-based activity and an educational and promotional tool aimed at mothers of young children as well as the entire community. GMP was considered a tool that should be handled by skilled health professionals. However, the data were made available and visible in the community, in order to promote child health and nutrition in the entire community.

Within the simpler PNI program model that concentrated on education of mothers, GMP was placed as an important activity in the community and in the clinic. Within the more comprehensive program models of REDESA and Good Start, GMP was applied as an activity conducted only in the clinic as part of regular health services and mainly used for education and health promotion in the community. Although it is unclear whether one impact pathway is more effective than the other, the different applications of GMP appeared suitably positioned within their overall program models and strategies.

Mapping PIPs

Methodology

Based on our experience, different methods for eliciting PIPs may be necessary at different operational levels. The interview method elicited more complete responses among national and regional program actors, who are trained or experienced to think in the language of program design and strategic planning. Actors at the local operational level were less familiar with program language and programmatic concepts, and we found that responses were sparse and fragmentary even when simple, common language was used during the interviews. Thus, an interview process may not be the appropriate methodology for eliciting the PIPs among local actors. Group participatory processes, using visual aids, may be more effective for mapping the perceptions of those who are not normally accustomed to articulating about programs.

To reduce the length and frequency of interviews with program actors, initial PIPs could be constructed from program documents. Then, the initial PIPs could be discussed and revised with program actors. After a process evaluation or mid-program monitoring, the PIPs could be revised based on findings. In all cases, mapping of PIPs should be considered an iterative and dynamic process.

Utility

Although program logic models and the logical frameworks provide a succinct overview of the program (for communication, strategic planning, and management), we found that PIPs provided a better representation of the connections between program activities and results, particularly where both upstream and direct intervention activities were part of the same program (for example, REDESA). PIPs demonstrated a more realistic and useful representation of the program, rather than the flat or leveled matrixes or models that were bound within program elements or categories, which may facilitate program monitoring and evaluations involving causal pathways. Also, the perceived causal connections between the activity process and the immediate outcomes related to knowledge and practice, and the gaps in the connections between intermediate and final outcomes were visually identified through the mapping of PIPs.

8. CONCLUSIONS

The use of program impact pathways (PIPs) provided a deeper look at the mechanisms by which activities were perceived to achieve their results. The illustrative PIPs provided a visual tool for tracking how activities were perceived to work and make an impact, bringing into focus the different pathways of the activities and influences along the way. Beyond the logical sequence of program inputs, outputs, and outcomes, the conceptualization of impact pathways is a useful approach for understanding the causal connections required for impact and identifying where attention and reinforcements may be required within program operation. Greater effort to elicit the shared articulation of PIPs among actors at different levels, coupled with regular feedback of specific issues across the different operational levels, would help reinforce the understanding of impact pathways across all levels. The utility of this tool also warrants its use not only during final evaluation, but also during mid-program monitoring and relevant assessments.

A question raised by these findings is whether a common understanding of the goals and pathways by which these outcomes are achieved is desirable (all *sing the same song*), or whether diversity in understanding is practical. Conventional wisdom would advise that common or harmonized understandings are useful for communication within and outside the program. Yet, common understanding can also be built on diverse perspectives, as long as they are shared and discussed. Literature from the field of organizational behavior stresses the relationship between homogeneity in organizational practices and organizational efficiency and effectiveness. However, taking diversity into account gives dimension to common understanding and guards against the ideological stances that *singing the same song* can entail. Furthermore, even though we found differences in the perceived PIPs among program actors across operational levels, the overall programs still proved to be effective in achieving their end results. However, it is unclear whether program effectiveness may be improved through greater congruency in the PIPs. Future research should elucidate how congruency of PIPs among program actors across operational levels could be increased, and whether greater congruency would indeed improve program implementation and effectiveness.

APPENDIX: SUPPLEMENTARY TABLES

Table A.1—List of program documents reviewed

Type of Document	Title and Year of Publication
ADRA-Peru's PNI	
Evaluation reports:	• *Sistematización de la experiencia del Programa Nutrición Infantil: Adopción de la metodología del PNI por parte de la Red de Salud de Vilcashuamán*, 2003 (Systematization of the experience of the Child Nutrition Program: Adoption of the PNI methodology by the Vilcashuaman Health Network)
	• *Informe final de evaluación del Programa Titulo II de ADRA Perú*, 2008 (Final report of the ADRA-Peru Title II Program)
Promotional materials:	• Tri-fold pamphlet about PNI
Educational or instructional materials:	• *Las mejores comidas para crecer: Recetas para niños a partir de los 6 meses de edad y para toda la familia*, 2004 (The best foods to grow: Recipes for children from 6 months of age and for the entire family)
	• Presentation on PNI educational sessions
CARE-Peru's REDESA	
Evaluation reports:	• *Acciones efectivas para reducir la desnutrición crónica: Evidencias del cambio en zonas rurales del Perú (2003–2004),* 2005 (Effective actions to reduce chronic malnutrition: Evidences of change in rural areas of Peru [2003–2004])
	• *Impact of an intervention on food security: REDESA program final evaluation*, 2007
Promotional materials:	• *REDESA: Por la seguridad alimentaria y la reducción de la pobreza*, 2005 (REDESA: For food security and reduction of poverty)
Educational or instructional materials:	• *Diseño, construcción y mantenimiento de letrinas ecológicas: La experiencia de Ayacucho*, 2005 (Design, construction, and maintenance of ecological latrines: The experience of Ayacucho)
	• *Formación y fortalecimiento de cadenas productivas agrarias en Ancash: El caso de la alcachofa, haba y maíz choclo*, 2005 (Formation and strengthening of agrarian productive chains in Ancash: The case of artichokes, haba beans, and corn)
	• *Buenas prácticas de lavado de manos en el Callejón de Huaylas y Conchudos (2003–2004*), 2006 (Good practices in hand washing in the Callejón of Huaylas and Conchudos [2003–2004])
	• *Conserjería comunitaria para incorporar hábitos saludables de nutrición en los hogares: Experiencia en Tambillo, Ayacucho*, 2006 (Community counseling to incorporate healthy nutrition habits at home: Experience in Tambillo, Ayacucho)
	• *Estrategia, metodologías y herramientas para la gestión comunitaria y local de la seguridad alimentaria*, 2006 (Strategy, methodologies, and tools for community and local management of food security)
	• *La familia saludable en la chacra integral*, 2006 (The healthy family in the integrated farm plot)
	• *Manejo integral de plagas: Guía para pequeños productores agrarios*, 2006 (Integrated management of plagues: Guide for small farm producers)
	• *Sesión demostrativa para hacer preparaciones nutritivas: Guía para agentes comunitarios de salud*, 2006 (Demonstrative session to prepare nutritious foods: Guide for community health agents)
	• *Una experiencia de análisis de riesgo en planes de negocio rural*, 2006 (An experience of risk analysis in rural business plans)
	• *Experiencias de gestión local y presupuesto participativo: Aportes a la participación, la gobernabilidad y la gestión pública*, 2007 (Experiences in local management and participatory budget: Tools for participation, governance, and public management)
	• *La experiencia de constitución del centro de competitividad de Ayacucho*, 2007 (The experience of developing the competitive center of Ayacucho)
UNICEF's Good Start	
Evaluation reports:	• *Evaluación externa del Programa Buen Inicio en la Vida*, 2007 (External evaluation of the Good Start in Life Program)
Promotional materials:	• *Resumen de "Iniciativa Buen Inicio" (1999–2006),* 2007 (Summary of the "Good Start Initiative" [1999–2006])
	• informational booklet on *Buen Inicio en la Vida, 2005*
Educational or instructional materials:	• *Crecimiento y desarrollo temprano: Practicas y recursos*, 2003 (Growth and early development: Practices and resources)

Source: Compiled by authors.

Table A.2—Interview guide for eliciting program theory: Critical assessment of program models to improve infant and young child feeding in Peru *(*June–August 2007)

QUESTIONS	FOLLOW-UP QUESTIONS	PROBES AND COMMENTS
Program Design and Development		
1. Tell me about what motivated this program to be developed. (Why was this program developed?)		**[To elicit rationale for program]**
2. What are the program goals and objectives?	• Targeted geographical location? • Target population? • Criteria for participation and termination?	
3. What is the measure of success for the program (that is, expected outcome)?	• Expected to reach outcomes through the program alone, or assumed activities/services of other existing programs?	**[To elicit definition of adequacy—child or population level?]**
4. How does this program help nutrition? (Specify different program activities and repeat question.)	• Was any specific framework used to design the program (for example, USAID results framework)? • What are the specific components of the program (strategies, activities)?	**[To elicit log frame design or other logic model used]** • Inputs, activities, participants, outputs, immediate to long-term outcomes • Components such as GMP, food supplements, education
5. What were some possible risks to implementing the program?	• Any assumptions about the context of the community and delivery structure?	
6. How well did the program work?	• Facilitating or promoting factors? • Barriers? • At the context of community or delivery structure?	**[To elicit contextual factors that came into play]**
7. Were any of those contextual factors designed into the program? (Specify based on previous responses.)		• Examples: participatory training
Communication of Program Theory (Program Planning)		
8. How was the program rolled out/ implemented?	• Who was responsible for what, at what levels? • Levels of implementation/ administration/communication?	
9. Was the program design/plan communicated to the different levels, and how?	• Who, what information, where, when, how often? • Facilitating or promoting factors to communication? • Barriers?	**[To elicit process of communication of program theory]**
Adaptation and Operationalization of Program Theory (Program Implementation)		
10. At the local implementation level, who is responsible for what tasks?	• Where, when, how often? • Supervision or accountability structure? (Who, what info, where, when, how often?)	
11. Were there any difficulties or challenges to implementing the program as planned/expected?	• At the context of community and/or delivery structure	

Table A.2—Continued

QUESTIONS	FOLLOW-UP QUESTIONS	PROBES AND COMMENTS
12. How did you react to these difficulties/challenges?		**[To elicit adaptation of program theory]**
13. Did you apply these adjustments more than once, or regularly? Did these adjustments get shared with other staff members or get incorporated into the program?		
Program Monitoring and Evaluation		
14. How did you monitor the progress of the program (timeliness, completeness, efficiency)?	• Who, what information, where, when, how often? • How was information used, and by whom?	
15. Was there an evaluation of the program?	• Who, what type and findings, where, when? • How was information used, and by whom?	
16. Was there a plan to continue or adjust or expand the program?	• Details of plan	
Immediate Post-Interview Notes and Observations:		

Source: Authors.

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